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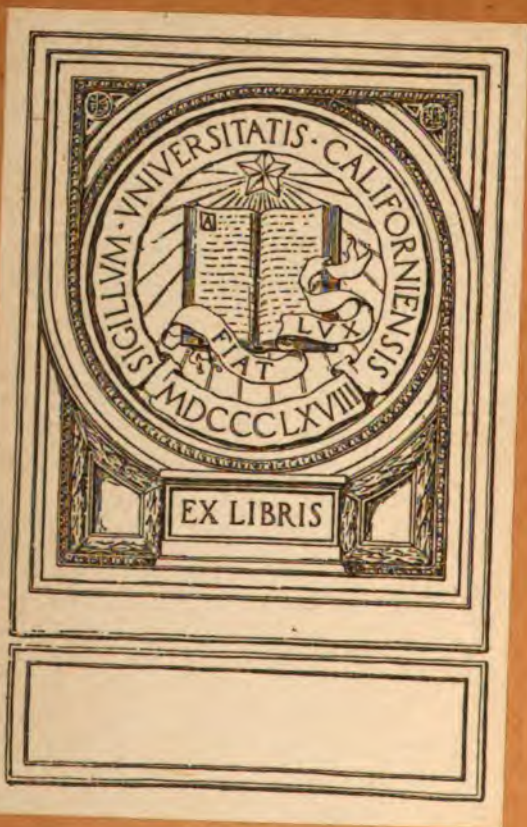
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7

THE CHILD IN HEALTH AND ILLNESS

CARL G. LEO-WOLF, M.D.

***Medicine, being a progressive science, does not recognize
the words "always" and "never."***



TO THE
ANATOMY

H. L., A CHILD IN HEALTH

THE CHILD IN HEALTH AND ILLNESS

BY
CARL G. LEO-WOLF, M.D.
" "

ILLUSTRATED



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TO THE
DORAN

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**DEDICATED TO
THE MOTHER
OF MY CHILDREN**

500226

PREFACE

The author has attempted in this book to collect as much as possible what he considered every mother should know about her child and its bringing up, in health as well as in illness. If he has gone more into detail on some subjects and brought less on others, this is based on his experience of over twenty years, first as a general practitioner and of late as a children's specialist. Thus, for instance, some mothers may be disappointed that he has not gone more specifically into the feeding of infants; but as he holds, and as he believes rightly, that this should be left entirely in the hands of the physician, he would have been inconsequent if he had not refrained from going into details. On the other hand, he has given the recipes mostly used nowadays in feeding infants, so that the mother can follow these in carrying out the physician's directions.

The book has been evolved from a series of lectures to nurses which has been given by the writer at different hospitals during the last fifteen years or more, and which have been revised from year to year.

Some of the contents of this book have been taken from books written by different authors, both here and abroad, and the author takes this opportunity to acknowledge his indebtedness to them.

The introductory pages, on the prenatal influence and care, have been kindly contributed by Dr. Peter W. Van Peyma and the chapter on the eyes by Dr. F. Park Lewis, to both of whom the author wishes to express his sincerest thanks.

So this book now goes forth and if it succeeds in lessening a mother's anxiety, if it will make it easier for her to raise her children and to see them grow up into healthy men and women, then its mission will be fulfilled.

The illustrations for this book are mostly from original photographs taken by my friend, Dr. E. A. Sharp, at the German Deaconess Hospital and at Our Lady of Victory Infants' Home; some have been furnished by friends; the cuts were provided by Best & Co. and the Jeffrey-Fell Co., others again are copies from books.

To all those who have kindly helped me I herewith express my sincerest thanks.

June, 1917.
481 Franklin Street,
Buffalo, N. Y.

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THE CHILD IN HEALTH AND ILLNESS

THE CHILD IN HEALTH
AND ILLNESS

THE CHILD IN HEALTH AND ILLNESS

PRENATAL INFLUENCE AND CARE

BY PETER W. VAN PEYMA, M.D.

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EVERY prospective mother should know that the care of the infant does not *begin* at the time of its birth. It extends back to the beginning of pregnancy. In a certain sense it may even be said that it goes back to its ancestry, for the health and vigour of the child's parents and ancestors are definite and important elements in the constitution and viability of the infant. The influences of heredity for good or evil are so certain that no man or woman should marry and have children without having good reason to believe that the offspring will start life with a fair chance of good health. In cases of doubt, the opinion of an intelligent and conscientious physician should be sought.

As soon as a woman recognises that she is pregnant she should place herself in the care of her medical advisor. The progress of pregnancy and labour should be, and is generally, physiologically normal,

yet there are many possible occurrences that may be serious, and that require immediate and intelligent attention. A woman who goes through the whole period of pregnancy without the supervision of a physician takes many risks, and may have very serious developments.

The rules which the pregnant woman should observe are, in general, those which every one needs to follow in order to maintain health. Only in special circumstances will particular requirements be found necessary. While due care and attention should always be observed excessive mental pre-occupation is harmful. To be constantly thinking about one's health is at all times prejudicial. During pregnancy also this should be avoided. Above all, apprehension and worry as to one's condition should be guarded against. A fairly normal woman, under competent medical supervision, should pass through pregnancy and labour in a state of serene and hopeful confidence.

In fairly normal circumstances, it is a general rule that what is good for the prospective mother is good for the unborn infant.

With these few prefatory remarks, we may now take up the special conditions that need careful attention.

It is not generally known that the development of the child during the first three months is very rapid. By the end of the third month the various organs of the infant are formed. During the following months they simply grow in size. During the later months,

also, the child as a whole grows in size and weight and there is especially development of bone and fat tissue.

It is particularly during the first three months that miscarriages are most likely to occur. For the above reasons especial care should be observed during the early period. Violent exercise, heavy lifting, jumping, slipping and falling, fatiguing and too long continued work, long jolting rides on the rear seat of an automobile, are all likely to be harmful. Worry and all other mental states that tend to lessen general health are also detrimental.

While the exact evil results of sudden and violent emotions have not been positively settled it is best to avoid all causes of great excitement.

A simple, quiet life with a fair amount of recreation and mental diversion is best.

Moderate exercise, with plenty of fresh, pure air, deeply breathed, is beneficial. It is, however, a great and common mistake to think that the greater the amount of exercise the better; that, for example, the greater the number of miles walked the better for the prospective mother and the easier the coming labour or confinement. Exercise, to be most helpful, must be enjoyed; should be recreative, should be mildly exhilarating.

The house, and especially the bedroom, should be well ventilated. The sleeping room should be cool, the bed clothing sufficient to keep warm. The clothing by day should be comfortable without any undue pressure or constriction. Corsets that constrict the

waist should never be worn. They are particularly harmful to the pregnant woman. Maternity waists that support the abdomen properly are sometimes advisable. The footwear must be of a kind to keep the feet warm and dry.

During pregnancy the food should be plain, nutritious, digestible, moderate in quantity. Only in special circumstances is a limited diet necessary. Limiting the food with the idea of having a smaller baby and an easier labour is not to be recommended. It has practically no effect except when carried to extreme and then is positively harmful to both mother and child.

As a rule, water should be drunk freely, preferably before meals. Coffee and tea should be taken sparingly, if at all. They should be wholly avoided by persons of a nervous temperament and by those who do not sleep well. Alcoholic beverages should be taken only when prescribed by the physician.

The pregnant woman supplies the needs of the infant. By means of the placenta, the so-called after-birth, and the umbilical cord she furnishes food and oxygen to the unborn. At the same time she removes the excretions of the infant, such as carbonic acid gas, urea, etc. This latter function gives added work to her organs of excretion, the lungs, the skin, the kidneys, and the liver and intestines. For this reason the lungs need plenty of pure air, the skin needs to be kept fairly active, care being taken that the surface of the body does not become chilled, the kidneys need a certain amount of liquid, including

pure water, and the intestines must be kept open. The food must not be excessive in quantity, nor too rich in quality. Perfect digestion is of the greatest importance.

The nausea and vomiting of pregnancy occur most frequently upon arising in the morning and are, therefore, sometimes called "morning sickness." Nausea and vomiting are of common occurrence but vary much in severity and troublesomeness. This disturbance develops usually at about the beginning of the second month and frequently ceases by the end of the fourth. A sudden change from the reclining posture to the erect, as upon arising from bed, favours the occurrence. A little black coffee with perhaps a little light food an hour before arising, with a very gradual change from the reclining to the sitting posture, may sometimes prevent it. If the condition is severe a physician must be consulted.

Careful attention to the teeth is very important. Trouble with the teeth is common during pregnancy. Rinsing the mouth with an alkaline solution, such as, for example, bicarbonate of soda a half teaspoonful to a glass of water is to be recommended. Minor dental work that is not painful is allowable.

Warm baths may generally be taken regularly, care being taken not to become chilled afterwards. Vapour baths, cabinet baths, turkish baths, massage, etc., while as a rule not objectionable are not ordinarily necessary.

The condition of the bowels is of the greatest im-

portance. The bowels should move freely once or twice daily. Many women suffer from constipation. A common cause of this is the neglect and the postponement, in earlier life, of the calls of nature. In course of time the lower bowel becomes accustomed to the overdistended condition and inactive in emptying itself. During the later months of pregnancy constipation is generally aggravated, often due to the pressure on the lower bowel by the pregnant uterus, and by lessened general physical exercise. Much can be done by trying to establish a regular time of movements. Laxative fruits and certain foods are useful in regulating the bowels. The need of laxative and purgative drugs is unfortunate. Still in certain cases they may be necessary. Various laxatives are recommended by physicians. A change of laxatives is occasionally advisable, as the same drug in time loses its effect. The milder the drug the better, so long as it is efficient. Enemata are sometimes useful.

Due to the extra work imposed upon the liver and the kidneys during pregnancy these organs not infrequently fail in their function. This condition may become very serious in its consequences by the accumulation of excrementitious poison in the blood. Fortunately careful examinations of the urine make it possible to recognise the danger in time. The urine should be examined regularly during the latter half of pregnancy. The frequency of examination depends upon circumstances. In general every two

weeks is sufficiently often. Approaching term, the examinations should be made every week.

There are certain symptoms which may be premonitory of danger. Some of these are severe frontal headache, blurring or obscurity of vision, recurring dizziness, puffiness of the face and hands, and, sometimes, very severe pain in the pit of the stomach. When any of these symptoms or any group of them occur the urine should be sent for examination at once, accompanied by a statement of the symptoms experienced.

For ordinary purposes a four ounce sample is sufficient. In certain cases a twenty-four hour sample is required. Care should be taken that nothing becomes mixed with the urine. The bottle containing it must be perfectly clean.

Not infrequently the breast-nipples demand some attention. The nipples should project sufficiently that the newborn infant may be able to take hold and nurse. In certain cases where the nipples do not project efforts must be made during pregnancy to draw them out. This can often be done by the fingers making gentle traction, and it can also be done by various means of suction such as pipes, heated bottles and breast-pumps. The efforts should not be too violent nor too long continued at one time. There exists an intimate relation through the nervous system between the breasts and the uterus, and too long continued irritation of the nipples may cause uterine contractions with possible danger of miscarriage. This nervous relation is often shown

when nursing causes the contractions called after-pains.

The nipples should be kept scrupulously clean. For this purpose a saturated solution of boracic acid in pure water is useful. To this solution one quarter the amount of pure grain alcohol may advantageously be added if the nipples are especially soft and moist. If, on the contrary, they are very dry and scaly a little sterilised cold cream should be applied.

Miscarriages are of rather frequent occurrence. They are most common during the first three months. They are due to various causes. The uterus may be in wrong position. The most common of the malpositions is retroversion or tipping backwards. Certain diseases both acute and chronic are common causes and require treatment. Some women miscarry habitually. In all such cases the physician must be consulted. Upon the occurrence during pregnancy of a flow of blood or of recurring pains in the back or lower abdomen the patient should at once go to bed, keep very quiet and send for a physician.

That the labour may be normal it is essential that the bony pelvis be of normal size and shape. Marked deformities are fortunately comparatively rare especially among American women. Where there is reason for doubt a careful measurement of the pelvis should be made early. The fact that a woman has had normally one or more full-sized children is the best evidence that her pelvis is normal so far as size and shape are concerned.

The engagement of a competent and conscientious nurse should be attended to early. The nurse should also be one that is congenial to the patient.

Whether to remain at home or to go to a hospital is a matter of circumstances. In case of remaining at home certain preparations as to room, bed and various articles should be made in time.

Finally it is important that during labour a woman do her part well. She must be prepared to exercise some patience and a fair amount of fortitude. Even a normal labour takes some time, and can not safely be hurried. This is especially true of most first labours. As a rule most harm, to both mother and child, is done in being impatient and hurrying the labour.

CHAPTER I

THE DEVELOPMENT OF THE INFANT

IT is a common mistake to assume that the infant, or the child, is only a small edition of the adult. This is by no means the truth, neither in reference to its general aspect, nor as to the construction or the efficiency of its organs.

Let us have a good look at the body of the infant and we shall perceive at a glance that its arms and legs are comparatively short, the abdomen too big, the chest barrel-shaped and narrower than the head, the head itself overlarge, the neck almost absent.

When we take correct average measures we find that the length of the body of the newborn is four times the height of its head (at two years it will be five times, at six years, six, at twelve years, seven, at twenty-five years, eight times the height of the head). (See Fig. 1.)

We also know that the surface of the body of the newborn is in comparison to its weight about three times that of the adult, that of the infant at six months twice that amount.

This greater surface of the body of the newborn and the infant is of great importance, inasmuch as a larger surface will naturally favour a larger loss of heat, and this in turn explains why the maintenance

of the body-heat requires considerably more energy from the system of the newborn and the infant than from that of the adult, and this also explains why the demand for energy, or expressing it in a simple way, the demand for food, is much larger the younger the individual.

The amount of heat produced by a certain amount of food is expressed by the term of "calories,"—a calory being the amount of heat required to raise the temperature of one kilogram of water one degree centigrade—and we know from experience that while the adult requires about 35 calories per kilogram, that is 16 calories per pound, the newborn infant requires about 100 to 110 calories per kilogram, that is 45 to 50 calories per pound, up to six months of age, after which time the required calories diminish in accordance with the lessening relative surface of the body down to about 90 calories per kilogram, that is about 40 calories per pound during later infancy.

Of all the newborn in the animal kingdom none is quite as helpless as the newborn human being, none so entirely dependent upon outside help; it will remain wherever it is placed, without being able to do as much as change its position; it is devoid of protective covering and it will therefore die from cold if not provided with clothing. During the nine months of its life within its mother's womb it was continually surrounded by the even temperature of the maternal organism and it received its nourishment from the mother's blood. Now, all at once,

what a sudden change takes place in the life of the newborn human being.—The temperature of its surroundings decreases from about 99 degrees Fahrenheit to about 67 degrees; the circulation through the cord is interrupted by ligation; it is required to provide its system with oxygen through inspiring the relatively cold air of the room. It is in need of a long refreshing sleep to get over the exhausting and unprecedented experience through which it has just passed.

During the first few days of life after birth the newborn will lose in weight as a rule, usually from 3 to 10 ounces. This loss will be made up about the middle of the second week.

The weight of an infant born at term averages $7\frac{1}{4}$ lbs. for boys and 7 lbs. for girls, though there may be considerable variations. In the writer's experience newborn babies weigh only very rarely more than 9 lbs., provided accurate scales are used.

TABLE OF WEIGHTS

HEALTHY NURSING INFANT WEIGHING AT BIRTH $7\frac{1}{4}$ LBS.

End of Month	Weight	Gain	
		Per Week	Per Day
1st.....	8.1 lbs.		
2nd.....	10.6 lbs.	$6\frac{1}{2}$ ounces	$7\frac{1}{2}$ drams
3rd.....	12.1 lbs.	6 ounces	6 drams
4th.....	13.6 lbs.	6 ounces	6 drams
5th.....	15.0 lbs.	$5\frac{1}{2}$ ounces	$5\frac{1}{2}$ drams
6th.....	16.3 lbs.	$4\frac{1}{2}$ ounces	5 drams
7th.....	17.4 lbs.	4 ounces	$4\frac{1}{2}$ drams
8th.....	18.3 lbs.	$3\frac{1}{2}$ ounces	$3\frac{1}{2}$ drams
9th.....	19.1 lbs.	$3\frac{1}{2}$ ounces	$3\frac{1}{2}$ drams
10th.....	20.0 lbs.	$3\frac{1}{2}$ ounces	$3\frac{1}{2}$ drams
11th.....	20.9 lbs.	$3\frac{1}{2}$ ounces	$3\frac{1}{2}$ drams
12th.....	21.6 lbs.	$2\frac{1}{2}$ ounces	$2\frac{1}{2}$ drams

A healthy nursing baby should have doubled its original weight by the end of the fifth month and should have trebled its weight at the end of the first year of its life.

The length of a newborn averages 20 inches; at the end of the first year it should measure 28 inches.

The skin is red and should be smooth; in some places, usually on the shoulders and upper arms, it is still covered by short curly hair, the so-called lanugo.

The scalp is covered with a considerable amount of silky hair, which is usually dark in colour; this first hair will fall out within the next few weeks and will be replaced by the permanent hair, which is somewhat coarser and frequently of a lighter colour.

The bones of the skull are ossified, but they can be moved against each other easily and one can readily define the borders of each bony plate. Between the plates we find the membranous sutures and the membranous spots, the so-called fontanel; of these latter the anterior one is the larger and shaped like a diamond, measuring in its long, antero-posterior diameter about $1\frac{1}{2}$ inches; the transverse diameter is about one inch; the smaller posterior fontanel is triangular. (See Fig. 2.)

The nails are fully formed and reach to or even beyond the ends of the fingers and toes.

The chest is barrel-shaped and circular in its cross-section, but with the further development of the child it becomes flattened in its antero-posterior diameter. The circumference of the chest of the

newborn averages 13 inches, and it will thus be found to be somewhat smaller than the circumference of the head, which averages 14 inches. Toward the end of the first year the circumference of the head and the chest will be equal, namely about 18 inches.

The mucous membrane, the lining, of the whole gastro-intestinal tract, including the mouth, is very tender.

The position of the stomach is a vertical one, and only later in life will it gradually assume the more horizontal position which we find it to have in the adult. This fact explains why infants spit up part of their food so readily, as this is simply a running over of the overfilled or irritated organ. This spitting up of food is always a sign that something is wrong either with the food or the feeding, and it is never observed in entirely well babies, except if a baby is allowed to lie on its left side immediately after nursing, when the heavy liver will press on the full stomach.

The intestines are still deficient in elasticity and their muscular coat is not well developed. The length of the intestine in the infant is six to eight times that of the length of its body; in the adult it is four and one-half to five times the length of the body. The inner surface of the intestine of the infant is also larger and its absorbing apparatus more abundant. The reason for this can easily be found in the greater amount, relatively speaking, of work demanded from the digestive tract and also of the

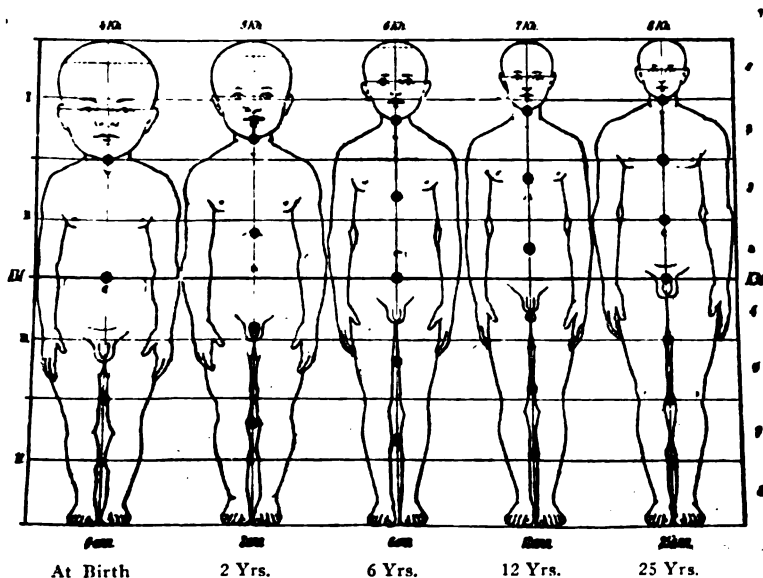


FIGURE 1. RELATION OF SIZE OF THE HEAD TO THE REST OF THE BODY



FIGURE 2. THE FONTANELS

digestive glands of the infant. For instance, the liver, the largest of these digestive glands, will weigh in the infant one-eighteenth of the weight of the whole body, in young adults one-thirtieth, and in old age one-fiftieth of the weight of the whole body.

The umbilical cord consists of three blood-vessels, two arteries and one vein, which were the only means of nourishing the child in its mother's womb; these are surrounded by a jelly-like mass. Through the umbilical arteries the infantile heart had been pumping the used-up blood back into the afterbirth, where the blood is cleaned and reloaded with those substances which are essential and indispensable for the life of the young growing organism, to be sent back to the child through the single umbilical vein. Under normal conditions the stump of the umbilical cord dries up within a few days and falls off spontaneously about the fifth or sixth day of life; at this site we will then find an ulcer which will be covered with skin in another eight days; until this process of healing is completed we call the child a newborn.

The urine is colourless except during the first four days, when it will be found to contain a considerable amount of a reddish substance which leaves a stain in the diaper. The urine is usually voided twice to each feeding and the daily amount of urine passed by the child is two-thirds of the amount of liquid it has taken.

The stools of the first two days of life consist of a greenish-black sticky substance called meconium.

By the end of the second or the beginning of the third day the first breast-stool will be voided. These stools are of a golden-yellow colour, thick, pasty; they look like scrambled eggs; their odour is slightly acid, aromatic and by no means disagreeable. Stools are usually voided twice a day. Should the infant pass his stools more frequently, should they be thin, greenish and mixed with white flakes, and should they be passed with pressing or squirted out, then this will be a sure sign of a disturbance of digestion, and the attention of the physician should be called at once to this condition.

During the first few weeks of life the infant moves but very little; it sleeps most of the time and is thus enabled to conserve a considerable amount of energy; but inasmuch as motion means also a production of heat, it will thus miss a source for the production of heat which will be quite considerable later in life. The principal physical exercise of the newborn is the crying, by which it may use up a considerable amount of energy. I wish to state however right here that the crying in infants is but rarely the expression of a desire for more food, but that, on the contrary, most babies cry because they have stomach-ache, owing to the overfilled condition of this organ. The first motions of the newborn are involuntary and automatic. About the end of the second month the infant will attempt to lift up its head, but it cannot keep its head up when being carried around until the fourth month, when it will also make its first attempts at grasping things volun-

tarily; it will try to sit up at five months. At six months it will begin to crawl around when placed on the floor; with about nine months it will get up on its feet and it will then soon be able to walk around a chair. The child will begin to walk really only after the completion of the first year.

The first smile of the baby will be observed about the middle of the sixth week.

The eyes of the newborn must get accustomed quite gradually to the transition from the absolute darkness before its birth to the bright sunlight of the outer world. For the first two weeks the infant seems to suffer considerably from the effect of bright light. The movements of the eyes are at first inco-ordinate; the eyeballs are not moved symmetrically; therefore a squint at this time or the turning of the eyeballs during sleep is, usually, without serious significance and should not give rise to alarm. The infant will begin to fix and to follow bright objects when it is six weeks old. Tears put in appearance usually during the third month.

The newborn is deaf. Usually during the third or fourth week it will begin to perceive loud noises; it will turn its head toward the source of sound only after it is two months old.

The healthy infant should sleep almost continuously during the first four or six weeks, waking up only for its feeding; during the next months it should be awake only during an occasional half-hour. Later on when we come to the feeding of young in-

phants I hope to show how easy it is to train infants from the very first day of life to wake up for their food at regular intervals and how they will thus give very little trouble to their mother or attendant.

The closing of the large fontanel should be completed by the tenth to twelfth month; delayed closing is a sign of something being wrong.

The first of the milk-teeth, the two lower middle incisors, appear at six months of age; during the next six to eight weeks the two upper middle incisors will put in appearance; then the upper external incisors, and during the tenth to twelfth months the lower external incisors; thus a child of twelve months should have eight milk-teeth, and by the end of the second year it should possess all its milk-teeth, twenty in number. An easy way to remember the order of eruption of the milk-teeth is the following scheme, in which the arabic figures denote the order of their appearance and the Roman figures the months:

XXI	to						XXIV
		XVII	to		XX		
	XII		to			XVI	
			VI to XII				
17	9	13	5 3	4 6	14	10	18
19	11	15	7 1	2 8	16	12	20

The newborn has a pulse-rate of about 135 (130 to 160) a minute and breathes at the rate of about 35 (30 to 60) respirations per minute; this is about twice as much as in the adult. By the end of the first year the pulse-rate will be 120 and the respirations 25 to 30 per minute. Irregularities in this rate in young infants should not cause any alarm, as they may be due to crying or temper or other slight provocations.

The temperature of the newborn in health taken in the rectum is 99.3 degrees Fahrenheit. In the premature it is lower, as will be explained later.

CHAPTER II

DISEASES OF THE NEWBORN

JAUNDICE of the newborn is not a disease, properly speaking, as it is found in at least eighty out of one hundred healthy newborn infants, but if it should persist later than the end of the first week, the physician should be called, as this might indicate some serious trouble. The yellow discolouration of the skin and the white of the eyes begins usually on the second day after birth, to disappear again within a few days.

Some newborn *do not breathe properly* nor cry lustily after birth; this happens mostly after difficult or instrumental labour, or, their *lungs fail to expand* entirely, which is mostly observed in premature infants. These children demand the constant supervision of a trained nurse for some days, and the physician should at once be called to employ the necessary measures to obviate these conditions.

A relatively rare and a serious condition in the newborn is one in which *blood is vomited and passed with the stools*, with the consequent weakening of the child; the best because most successful treatment for this is the introduction of human blood, usually of its father, into the circulation of the baby.

On the second or third day after birth we will observe in almost all newborn, regardless of the sex of the child, a *swelling of the breast-glands*, sometimes accompanied by a discharge, the so-called "witch's milk"; this will reach its height around the tenth day and disappear completely in the third or fourth week. This condition must be left entirely alone, beyond applying a light protective dressing to avoid injury and infection.

Infection of the navel is the most frequent as well as the most serious disease of the newborn. Whenever the navel does not look quite normal or shows an abnormal discharge, or when its healing is delayed the physician should be called at once. The utmost care and cleanliness in the handling of the cord can usually prevent this infection.

The physician should also be informed at once of any redness of or discharge from the eyes of the newborn because of the serious results so frequently following an *infection of the eyes* during the act of birth or soon after—an infection which is responsible for the loss of sight in one-third of all the blind children under ten years of age.

Once this disease has been allowed to develop, only the most painstaking care, the most constant and conscientious carrying out of the physician's orders, by day and by night, may be able to save the child's eyesight.

Luckily we have an easy means to prevent this infection by simply placing a few drops of a disin-

fecting solution between the child's eyes immediately after its first bath.

In a large number of states and countries this preventive treatment must be used by physicians and mid-wives, with the happiest results, and some states, as for instance the State of New York, and also some cities furnish solution and dropper, ready for use, free of charge.

CHAPTER III

THE CARE OF THE NEWBORN

WITH the tying and cutting of the cord the birth of the child is accomplished; what is to be done with the helpless, screaming, kicking mass of humanity, covered with a sticky, slimy coating, which the attendant is expected to transform into the beautiful baby, as the creator transforms the unsightly chrysalis into the varicoloured butterfly which delights our eyes?

I might state right here that it is my opinion that from this stage on the infant should pass out of the hands of the accoucheur into those of the pediatricist who is specially qualified to supervise its further development and its feeding.

Before this care was taken that a plentiful supply of hot water should be on hand, also some cold water, which might be needed if the newborn should not breathe properly or to bring the temperature of the first bath down to the right temperature of 95 degrees Fahrenheit. Towels and the infant's first clothing have been hung around some heating-apparatus, so that they shall be warm when needed.

Now comes the first bath. This should be given in the well-heated bath-room or in the houses of the

less fortunately situated in front of the kitchen-range. The temperature of the bath should always be measured with the bath-thermometer (see Fig. 3); it should never be guessed at by the mere immersion of the hand or the elbow, because the hand which is accustomed to do washing or to wash dishes, or in the case of the nurse to apply hot packs or poultices is not able to discern minor differences in heat, and serious scalding of the baby has not infrequently been the result of this carelessness.

Very important is the way in which the child is placed into the bath, for the reason that many a child will cry whenever it is given its bath because this was done from the very first in such a way as to frighten the baby and to make this, which should by rights be a pleasurable procedure, one of torture. The right hand grasps the child from underneath so that the fingers are in the right armpit and the thumb on the right shoulder, the child's back rests comfortably on the nurse's hand, its head on her forearm, the left hand of the nurse grasps the infant's feet, and now it is allowed to slide slowly into the bath, feet first, until its whole body, with the exception of the head (see Fig. 4) is submerged in the water. Now the left hand can let go of the feet and is free to clean the child (see Fig. 5). The washing should be done very gently with absorbent cotton and castile soap; if the sticky, cheesy mass covering most newborn should be very thick and adherent, it should be removed with warm olive oil. Great care should be employed in preventing the water of the

bath from getting in contact with the face and especially the eyes, because the eyes may thus become infected after they have escaped this danger during birth.

After the child's body has been thoroughly cleaned, it is removed from the bath in the same manner in which it has been placed into it, naturally in reversed order; it is enveloped in a warm bath-towel on the nurse's lap and carefully dried, not by rubbing with the towel, but by rubbing gently over the towel. Next the face is washed with sterile warm water, that is with water that has been boiled, and fresh cotton, which is frequently changed. The eyelids should be cleaned first from the outside toward the nose with separate pieces of cotton, then the rest of the face, and finally the nostrils and ears are taken care of with twisted bits of cotton.

After the bath is completed and the child thoroughly dried the ends of tape with which the cord has been tied, and which have been left long for this purpose, are grasped and another turn is taken around the cord, which has usually shrunk considerably during the bath, and tied by a firm knot.

Now the infant is thoroughly inspected for any possible malformation and the attention of the physician should be called at once to any suspected abnormality. Lastly the disinfecting drops are carefully administered to each eye, preferably by the physician, and the infant is now ready to be dressed.

The first part of the dressing consists in the care of the stump of the cord. This is best done by

wrapping it in several layers of sterile absorbent gauze, and it is thus placed upwards against the abdomen. It is entirely immaterial if this is done a little more to the right or to the left side, though old-fashioned notions, of which we meet so many when taking care of children, seem to favour the left side of the body; in this position it is held and protected by a flannel band, three inches in width and about eighteen inches long, which is snugly fastened around the abdomen with safety-pins (see Fig. 6).

The clothes of the newborn are the same that it will wear during the first months of life and will be described later.

The bathing and dressing of the newborn should be done as expeditiously as possible, and any chilling during these procedures should be most carefully guarded against. Everything should be ready before the nurse begins, and all articles that come in contact with the child's skin should be well warmed. The door of the room in which it is to be done should be locked, in order to prevent anybody from entering the room during this time and thus creating a draft of cold air. The temperature of the room should not be less than 68 degrees Fahrenheit nor much above this. The attendant will also do well to tie a clean bath-towel around herself in form of an apron to protect her own clothing.

After the baby has been dressed it should be placed in its crib and allowed to sleep.



FIGURE 3. BATH-THERMOMETER.



FIGURE 6. NEWBORN WITH CORD WRAPPED IN GAUZE AND BINDER ABOUT TO BE APPLIED.



FIGURE 4. NEWBORN BEING PUT INTO BATH.



FIGURE 5. NEWBORN BEING HELD IN BATH.

When should the newborn be put to the breast and how often should it be allowed to nurse?

Immediately after birth both the mother and the newborn are exhausted, the one by its passive labours and the truly tremendous strain of suddenly accustoming itself to entirely changed surroundings and by having to learn, of a sudden, to do for itself things that, so far, have been done for it by the organism of its mother; the other by her active labours. What they require is a good long twenty-four hours' rest. The baby does not need any food at this time, nor could it get any at the breast, beyond a few drops of what is called colostrum, which will give it the gripes at that. It comes into the world well nourished and it has enough to do to adapt itself to its new surroundings, to the change in its circulation and the unaccustomed act of breathing, without our subjecting it to any further loss of strength from repeated and purposeless nursing, which tires it and the poor mother, and, besides, may get it so disgusted with its fruitless efforts, that it, showing more sense than we do, will soon refuse the breast altogether. This was a frequent cause of our having had so much trouble in making babies take the breast and why we have been unable in many cases to make them nurse at all, even after the milk-supply had become plentiful.

On the second day, after both the mother and her infant have had a good rest, we let the baby take the breast once or twice, so that it can now obtain some of the colostrum, which by this time will be

present in larger quantities in the breasts. This will clean its bowels of the first black stools, the meconium, and do this better than any of the old-fashioned teas—saffron tea, for instance, which is given because it is yellow and is therefore supposed to be good for the normal jaundice. If the baby cries much we give it as much warm water as it wants, but without any sugar.

On the third day we allow the baby to nurse three times; four times on the fourth day; and from the fifth day on we allow it to nurse every four hours in daytime but never at night. This gives it five feedings daily, usually and best at 6 and 10 A. M. and at 2, 6 and 10 P. M. If it sleeps it is awakened, and it is surprising to see how soon the little ones get accustomed to this régime, and how well they will soon know when it is time for nursing.

This method, which is the one now in great favour among European pediatricians, is meeting with favour over here among physicians, nurses and, last but not least, mothers, because it proves to be almost universally successful, and its growing popularity is well deserved.

It is only necessary to observe the condition of the mothers when they have had a full night's rest every night from the time the baby was born; how well they look and how they have a plentiful supply of good milk. The writer allows the nursing mothers under his care to eat anything they want, after they have had their first refreshing sleep after childbirth; he no longer places any restrictions upon

their diet, as long as they are getting sufficient nourishment to keep in good health. It is also only necessary to observe the good condition of the babies; how quietly they sleep, and the look of contentment upon their little faces; this in itself will be sufficient proof to mothers of the advantages of this method in almost all cases.

The infant is called a newborn as long as the navel is not healed, that is during the first two weeks. During this time the navel demands a great deal of care, but in so far only as we have to guard against its becoming infected. This can easily be prevented by following the laws of antisepsis and asepsis.

The nurse should remember that the discharge from the mother always contains pus-producing bacteria in large numbers, which, though they are not dangerous to the mother, may easily be transferred by the nurse's hands to the navel or the skin of the newborn, there to cause infections which can not be explained in any other way. Or they may be transferred by means of the child's bath-tub, which should be reserved for the exclusive use of the infant, but which is used sometimes as a receptacle for the soiled linen from the mother's bed. Nor should we forget the water used for the baby's bath, and in localities in which the water-supply is not above reproach only water that has been boiled should be used for this purpose.

Whenever the people can afford this, two nurses should be engaged; one takes care of the mother only, the other to be in charge of the infant. Where

this is impossible, for obvious reasons, the nurse should give the baby its bath with disinfected hands in the morning before she changes the mother's clothing, and she should use rubber gloves for this latter duty. Quite naturally the baby's bath-tub should never be used for anything but the baby.

There seems to be still some difference of opinion if the newborn should be bathed every morning or not. As long as the necessary precautions are taken and especially if sterile water be used this is certainly advisable. The short period during which the child stays in the water will not interfere with the drying out of the cord, and in the bath the gauze-dressing can be soaked and carefully removed and then be replaced by fresh dressings. After the cord has dropped off the clean water can only be beneficial to the healing wound, which is afterwards carefully dried with absorbent cotton and slightly dusted with some mild antiseptic powder and dressed with clean gauze.

One of the most objectionable practices is the routine wiping out of the mouth of the newborn. This unnecessary torture of the little ones corresponds to the toilet of our own mouths with a stiff wire brush. Since discarding this obsolete practice the writer has seen but very few cases of infected mouths.

CHAPTER IV

THE CARE OF THE INFANT

BATHING. Nothing is so important for the care of the skin of the infant as the daily morning tub-bath, and no amount of washing will equal it in cleansing every little fold on the surface of the body.

The bath is best given before the second feeding, about 9.30 A. M., and should be administered in the way described for the newborn. The greatest care must be taken to prevent chilling of the infant during its bath, and it is therefore always best to give it in front of a special heater, gas or electric, or near the kitchen-range, and a screen should be placed between the bath-tub and the door, though it is preferable to lock the door of the room to prevent any rush of cold air.

The temperature of the water should be 95 degrees Fahrenheit for the first six months, then 93 degrees Fahrenheit; the temperature of the bath should always be determined with the bath-thermometer after the water has been stirred well.

The baby should not be allowed to stay in the bath longer than from three to five minutes. If it is allowed to stay longer in the warm water we will observe that its skin and muscles become flabby; it will

no longer kick lustily in the water or while it is being dried, and owing to the dilatation of the blood-vessels in its skin it will perspire for some length of time after the bath.

Cold showers at the end of the bath are not advisable for infants except in certain conditions, when they may be the means of saving a baby's life; then, however, they should be ordered by the physician for some definite time, but as a routine procedure they should not be used.

Great care should be taken that the deep folds of the skin, especially in the groins, the armpits, around the neck and behind the ears, are carefully cleaned in every bath. The face must never be washed in the bath, but this must be done with clean water after the infant's body has been dried.

During the bath the infant's body must be carefully examined every time for any possible abnormality or injury.

The soap used for infants must be mild and non-irritating; the best is a good castile soap, not some scented soap with some high-sounding name, nor some medicated soap, which is usually irritating to the tender skin and the price of which is excessive because the consumer has to pay for the advertising.

The best and surest sign that the attendant is giving the bath in the right manner is this, that the baby shows its pleasure at the procedure by lustily kicking around and hitting the water with its little hands; whenever we see a healthy infant which ories



FIGURE 7.—OLD FASHIONED WAY OF PUTTING ON DIAPER



FIGURE 8.—NEW METHOD OF PUTTING ON DIAPER



FIGURE 9. PAD OVER DIAPER

during the bath, then we can make up our minds that it is not skilfully given or that the baby does not feel secure in the nurse's hands because it has been frightened at some time or other by being placed into the water too suddenly.

The drying of the infant's body after the bath should be done very thoroughly but gently, by rubbing with the hand over the bath-towel which the nurse has fastened over her apron before giving the bath.

After the face has been washed the eyes, especially the inner corners, are washed with clean pieces of absorbent cotton, one for each eye; the nostrils and ears are cleaned with twisted bits of cotton, and finally the yellow scales and crusts which we find so frequently on the scalps of infants are softened with warm sweet-oil and then gently removed; sweet almond-oil is better, as it does not become rancid, though it is a little more expensive.

The bathing completed, the baby is wrapped in a fresh warm bath-towel and placed in its crib for fifteen to twenty minutes before it is dressed; the reason for this is the fact that all babies perspire this length of time even after a well-given bath, and this perspiration would otherwise be taken up into the fresh clothing and might then irritate the tender skin. The nails of the fingers and toes should also be looked after at the time of bathing and should be trimmed at frequent intervals. In hot weather the infant may be given a sponge several times during the day. It is also washed over the respective parts

whenever it has soiled itself with its stool. Before the evening nursing, at six o'clock, it is also daily given a sponge before its clothing is changed for the night.

Cleaning of the Mouth. As stated above, the baby's mouth should never be cleaned until after the teeth have appeared and then these only demand attention. Sore mouth or thrush, a fungus growing in the mouth, is usually due to either digestive troubles or to the injury of the lining of the mouth by rubbing in the superfluous attempts at cleaning the mouth, or by injuries with sharp-edged articles which the older baby has put into its mouth. The rubber nipple or pacifier, which has a habit of dropping on the floor and which is then, in only too many cases, picked up to be given back to the baby after wiping it hurriedly on an apron, and which is for this reason usually teeming with bacteria, is also a very frequent source of infection of the mouth of the infant, aside from its being entirely unnecessary. The healthy and well-taken-care-of baby cries but very little, and why this crying, which is usually for good cause, should be choked off by artificial means is beyond the writer's understanding. In infants who are sick or whose digestion is disturbed it is without the least doubt better to remove the cause for the persistent crying than to fool the baby and ourselves by removing the effect instead of the cause.

The pacifier is a sign of deficient care or poor



FIGURE 10. BABY CLOTHES

feeding of the infant and is a reproach to those who are responsible for its use.

Since the writer has interdicted the cleansing of the baby's mouth and has prohibited the use of the pacifier he has seen only very few cases of sore mouth or thrush, nor has he observed anywhere near the number of swollen glands under the jaws.

Putting the Infant Dry and Powdering. The infant should be given clean diapers every time it has wet or soiled itself. Urine is generally passed during or right after a feeding and once or twice in between and several times during the night. Infants who spit up some of their food very readily when disturbed are best changed immediately before nursing and then again some time after it; otherwise it is naturally best to change them, without too much shaking of the baby, immediately after nursing before they are placed back in their crib. When the infant gets restless during its sleep and cries, this is usually a sign that it wants to be and should be changed; the healthy baby, especially when at the breast, will go to sleep again right away.

Should the child's buttocks be sore, then it must be changed at once whenever it has wet itself and the attendant should frequently ascertain if this is the case.

Girls must always be cleaned from the genitals backwards toward the anus; otherwise the bacteria from the stools may be carried into the urethra, whence they may ascend to the bladder, to cause

here an inflammation, an ailment which is by no means rare in babies, especially baby-girls.

Powdering the baby whenever it is changed is not at all necessary, especially in the private house when it is looked after by an experienced woman or the careful mother, but in hospitals and also in very fat infants it is preferable to use some simple powder such as talcum—not the medicated or scented kind which is much advertised—or stearate of zinc, which is to be recommended when the baby is sore. Bolus alba, or sculpter's clay, is at the same time the cheapest and best when it is sterilised by baking in the hot oven for one hour and then powdered finely.

One of these powders is applied with a box over which a piece of gauze has been tied, then the superfluous powder is removed with a clean piece of absorbent cotton, principally from the deep folds around the legs and buttocks; otherwise the powder may form an irritating paste with the urine, especially when these folds are not carefully cleaned every time the baby is changed, and the physician will be told by the mother or nurse that "the baby is sore, though I powdered it very freely every time."

The Clothing. The clothing of the baby should be chosen according to the thermometer but not according to the calendar, and it may be necessary, in the climate of Western New York at least, to change it several times a day. It should also be as simple as possible, without any expensive laces, which are hard to wash and difficult to put on. A rosy face in



FIGURE 11. BABY CLOTHES WITHOUT PINS OR BUTTONS, AND SHAPED DIAPER



FIGURE 12. SLEEPING BAG



FIGURE 13. NIGHT GOWN

a simple little cotton slip, provided this is clean, is far preferable to a peaked little face, the paleness of which is enhanced by a frame of expensive Brussels lace. The clothing should also be such as to allow the infant to kick and to exercise its limbs.

The most frequent mistake in clothing babies is that the clothing is as a general rule too heavy, so that the poor little ones are in a continuous Turkish bath. This is what makes them so often pale and flabby; the increased loss of water from perspiring prevents their gaining in weight and they are easily chilled. On the other hand a frequent mistake is also made by having the babies insufficiently clothed when they are taken out for an airing; this is due in many cases to vanity, and the little ones have to suffer for this.

It is a very difficult matter to explain in writing how the clothing should be put on; this is a matter of experience and can only be learned by practice. Only a few words therefore about the principal articles of clothing.

The napkin should be made of some soft material; bird's-eye cotton is perhaps the cheapest and best. They must be put on snugly and smoothly so that they will not press nor rub on the skin anywhere. Flannel or woollen diapers are bad because they are hard to wash and they prevent evaporation; after they have been used a few times they will frequently smell stuffy and ammoniacal. The size of the diaper should be one square yard for normal-sized children. The old-fashioned way to put on the diaper and the

one mostly in use is to fold the diaper twice into triangular shape, then lay it down with the longest side of the triangle at the top, place the child on this so that this comes in the middle of the back, draw up the point of the diaper between the legs, fold the two free ends over the lower abdomen and pin it with safety-pins (see Fig. 7). In every big dry-goods store we can find now patterns for a diaper which is shaped in the back and which is provided with tapes instead of the safety-pins; this is much better because it fits more snugly and is easier to put on (see Fig. 11). The new and best way to put on a diaper, one which the writer has occasionally seen employed by mothers from different parts of this country and which has also been described by a Southern physician, is to fold the diaper into rectangular shape, instead of the triangular and to pin it over the sides on each hip, in the way in which women wear their monthly bandages (see Fig. 8); this has the advantage of preventing the bunching of a considerable part of the diaper between the legs and thus forcing these apart, and will also prevent pressure on the lower part of the abdomen and its contents. A smaller diaper or pad of some absorbent material should come outside of the first one (see Fig. 9).

Naturally only newly washed and boiled napkins should be used, and we must never permit them to be simply dried and then used again. The best and simplest way, especially in institutions and in the sometimes cramped quarters of the modern apart-

ment house, is to tear off the desired length from a bolt of bird's-eye cotton which has been sterilised by dry heat and to throw it away after it has been used once; the writer has observed this in the service of some of the New York hospitals and was very much impressed by it. Rubber diapers or drawers cannot be condemned too severely; they are a frequent cause of irritation of the skin because they make a poultice of ammonia of the wet diaper.

The shirt should be of cotton and must be pinned to the diaper (see Fig. 10); those with tapes are preferable to the ones which are fastened with pins or buttons (see Fig. 11).

Cotton stockings must be worn except during the hot summer months and must also be fastened to the diaper, either with tapes or with safety-pins.

Shoes are not needed until the child is in short clothes and then they should be knitted ones. Leather shoes should not be worn until the child learns to walk.

Over the shirt comes a pinning blanket which is long enough to be folded over the feet to keep these warm; then a dress and in cool weather a knitted jacket.

The flannel belly-band or binder should be done away with altogether; it is really put on to prevent a rupture at the navel; this it never does. It is rather difficult to pin it on snugly and at the same time smoothly without wrinkles, and when the child is otherwise clothed right it is entirely superfluous.

When the baby is about five months old and its

back is strong enough to support it, the clothes may be shortened to three-quarter length, that is to the feet. At seven months, when it begins to crawl, it is put in short clothes and it is now advisable to replace the outer diaper or pad by a pair of buttoned drawers, which are pinned to the shirt.

During the hot summer months the baby should be dressed as lightly as possible. The writer has often told mothers that all the child should wear then is: a gauze shirt, a diaper and a smile, the first two being all that is necessary for the infant's comfort and the last one coming by itself as a natural consequence.

At least once a day the baby should be placed on a hard mattress, without any clothing, naturally in a well-heated room, and should be allowed to stretch out its body and to kick to its heart's content for at least fifteen minutes; no more happy time for the little one can be imagined than when it finds out that it has feet and toes to play with.

When they are to be taken out for an airing young babies should be wrapped up in a woollen blanket or a sleeping bag (see Fig. 12) which leave only the face free; older ones are put in a coat of varying weight, according to the outside temperature and their head covered with a knitted cap; a veil is an unnecessary torture. In weather which is so inclement that the baby's face would have to be protected, the infant can get its airing in a room, the windows of which are opened, dressed the same as



FIGURE 14. CLOTHES-BASKET AS BED



FIGURE 15. IRON BED

for outdoors. Otherwise the cap should never be worn indoors.

At night the baby should wear a fresh shirt, diapers and a long flannel night-gown with a draw-string through the bottom, which is to be tightened so that its little feet are never exposed to the cold air (see Fig. 13).

One of the hardest things to teach mothers and nurses is this, that the baby's head and face should not be protected all the time by a cloth or shawl, and that daylight does not hurt the infant's eyes as long as it is not exposed to the direct bright rays of the sun.

The Bed. The simplest and cheapest kind of a bed is a long clothes-basket the inside of which is covered with a removable lining of light-coloured cotton cloth; a woollen blanket folded so as to fit the basket serves as a mattress (see Fig. 14). There should be two blankets, so that one can be aired on the washline while the other one is in use. The best bed for infants is one of the white enamelled iron hospital-beds (see Fig. 15). These are lined with a light-coloured washable cloth which can be buttoned on and can easily be changed when soiled; this serves as a protection against chilling when the door is opened. The mattress in these beds is made in two or preferably three pieces; it is stuffed quite hard with horse-hair; this is protected by a piece of rubber cloth over which comes the sheet; this latter is best pinned down at the corners to prevent its becoming wrinkled; over this comes a so-called draw-

sheet under the buttocks of the child, which can be readily changed. A pillow for the head is unnecessary especially for young infants; for older ones a thin hard pillow of horse-hair may be used. For children suffering from rickets, whose skull is frequently very soft, a ring stuffed tightly with lamb's wool should be used instead of the pillow, to prevent deformities of the head; this ring should be changed at frequent intervals because these children perspire very freely on the head.

Needless to say that an infant should not be permitted to be lying too long in the same position, because this also might lead to deformities of the head, and that it should not be placed on its left side until about two hours after feeding.

The baby should be covered with a woollen blanket which must be folded into a sheet to prevent its being soiled; at the upper corners of this should be sewed tapes which can be tied to the bed, so that the child can not uncover itself during the night.

In summer the baby's bed should be covered with a piece of netting to protect it against flies and mosquitoes, but this must be far enough away from the child so that it can not pull it down and to permit free access of air.

What shall we say about the cradle in which the child can be rocked to sleep? This is common amongst most of the people on the face of this globe, civilised as well as uncivilised; exceedingly small is the number of those nations where it is unknown. Does it really make the infants nervous or does it



FIGURE 16. HAMMOCK



FIGURE 17. WILLOW BABY-RUGGY



FIGURE 18. HIGH CHAIR



FIGURE 19. WALKING PEN

not? The most we can say against it is that it is unnecessary and that nowadays infants get along without it.

For sleeping outdoors in summer the baby may be placed into a hammock which is covered with mosquito netting; this is most conveniently fastened to a special support so that it can be moved around into the shade (see Fig. 16).

The Buggy. The best buggy to bring the baby out into the street in is still the old-fashioned willow affair. It is roomy and the inside of it should be covered with a removable washable cloth lining; it is furnished with a half-top which can be changed according to the direction of the wind and sun, with stiff springs, rubber tires and a brake to be set when the buggy is standing (see Fig. 17). The measures of the basket should be as follows: Length 36 inches, depth 14 inches, width 18 inches. The willow should have a sufficiently wide mesh to permit of free ventilation. Leather or oil-cloth lining should not be allowed because it interferes with the ventilation.

The new English or Princess buggy, though it looks very smart with its narrow, straight, but highly varnished body, which is lined with smelly leather and like material for the top, its loose springs, which are in constant motion, its leather curtains, which can be tightly fastened so as to exclude even the last vestige of fresh air of which the child is so much in need in winter as well as in summer, should never be allowed. Any thinking mother or nurse will easily see its disadvantages, and they

need only have a smell of them, after they have been in use for some time, to be convinced. Another objection to these is that they are not large enough for the child's comfort.

The Room. The room of the baby should be large and airy with an exposure to the South, South-West or South-East. The windows, at least two, should be large and easily opened; in summer they should be protected by fly-screens; shades should be provided. A corner-room is the best to ensure good ventilation, and the room should, whenever this is possible, be located at the rear of the house to keep out the noises and the dust from the street. Everything in the baby's room should be light in colour and washable; heavy portières and carpets serve only to collect dust; window-curtains should be of cretonne and easily removable for washing.

The floor should be either of hard-wood or covered with linoleum; matting is not advisable because it is too much of a dust-collector. The temperature of the room should always, day and night, be around 68 degrees Fahrenheit.

The bed should be so placed that it is protected against direct air-currents when the doors and windows are opened (see Fig. 20). For young infants it is advisable to have a screen covered with some washable material around the bed; this can also be used to protect the bath-tub at bathing time.

Modern technic and the art of interior decorating have produced some effects for the baby's room which are very pleasing to the eye and at the same

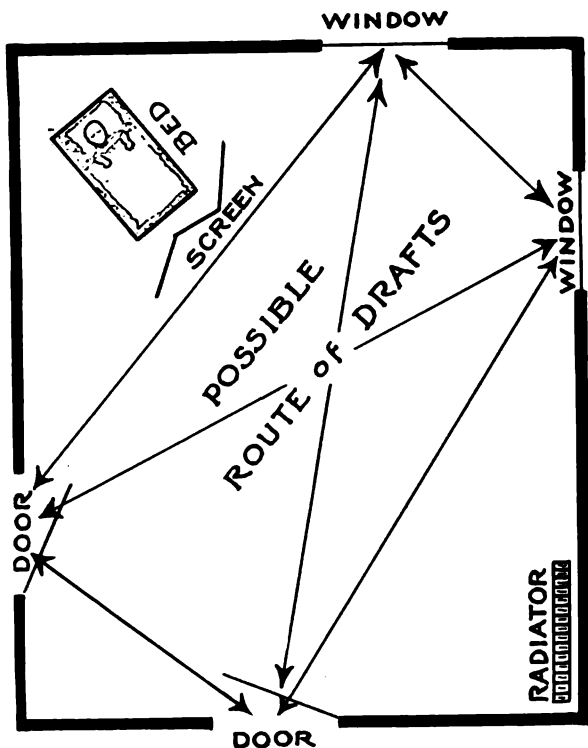


FIGURE 20. NURSERY

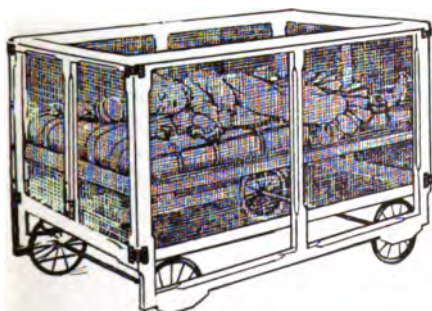


FIGURE 21. BABY CARIOLE

time most serviceable; the expense of these is by no means prohibitive.

Electric fans should be used as little as possible; they should never be allowed to play directly over the infant's face, though they are a splendid means of giving relief from the oppressive moist heat of the summer in our climate. The electric fan does not however take the place of ventilation of the air in the room; this must always be done by opening the windows several times a day, during which time the child should either be taken out or into another room.

Perfumes or other artificial means will never make up for insufficient ventilation.

Strong-smelling flowers should never be permitted in the room.

The furniture for the baby's room should be without any sharp edges, simple and easily cleaned, light wooden pieces painted with light enamel are preferable.

Beside the iron bed the room should contain a chair or two for the attendant; a low chair with a foot-stool to be used by the mother when she is nursing the infant; a stand on which the baby's clothing can be warmed; a bath-tub best of enamel ware, on a stand high enough to make bathing comfortable; a small wash-basin for the face and eyes; a basket stand with the powder-box, soap-tray, etc.; a chest-of-drawers for the clothing; an iron enamel pail with a cover for the soiled diapers; a narrow high table with a pillow which is covered with oil-

cloth on which the baby can be dressed and changed.

When the infant is old enough to sit up alone it should have a high chair in which it can be propped up and securely fastened and in which it can play (see Fig. 18), but the child should never be taught to sit up; it knows well enough when its little back is strong enough to hold it. This chair should not be provided with an opening for the chamber, because this, when used injudiciously, may cause the rectum to protrude. Nor should babies be permitted to sit up too long at a time.

When the baby is old enough and strong enough to sit up it should be taught the use of the chamber, at least for the movements of its bowels, and if this is done regularly every morning and evening at the same time we will be astonished to see how easy it is to train even young children and to get them accustomed to regularity, and the physician will then no longer hear the frequent complaints about constipation in children. The writer knows of at least one nurse who propped up very young infants in a well-padded little chair and who succeeded quite universally in teaching her little charges the use of the chamber by the time they were about six weeks old.

As soon as the baby shows an inclination to crawl around it should be provided with a walking-pen or baby-yard (see Fig. 19), in which a clean blanket is placed; this is kept for this purpose to prevent infection from the dust of the floor. These pens can be bought, but any one handy with a few carpenter's

tools can easily make one at home at very little expense. Very good are also the baby-carioles (see Fig. 21).

When choosing the baby's toys we must always remember that it will place everything into its mouth, consequently things with sharp edges, which lose colour, or woolly things must be avoided. The best toys for infants are rubber dolls, but only those without the little whistle which comes out so easily and may be swallowed or aspirated and thus endanger the infant's life; these rubber play-things have also the great advantage that they can be kept clean by washing.

The Education of the Infant. The physician will frequently be asked by the fond but inexperienced mother if it is possible to educate a baby. This can certainly be done and should be done from the very first day of its life. That it is not always done is equally true; the more the pity.

What else is it but education if we teach the infant regularity in its meals from the very first? What else when the baby is put to bed after nursing and goes to sleep regardless of the light or anybody talking or walking around?

Look, on the other hand, at the spoiled little tyrant who will go to sleep only in a darkened room when everything and everybody is absolutely quiet, and at that only in the mother's or nurse's arm, who has to be rocked to sleep and perhaps with a pacifier in his mouth. All these things are simply a matter of education. Let the baby understand from the very

first that it will not be taken up every time it cries a little, that it does not require something in its mouth to go to sleep with, and we will not see so many "nervous" babies.

The young baby should be left entirely by itself; it should not be played with; it should realise that its whole duty in life, for the present at least, is to drink, to sleep and to grow. This they will soon learn to do and they will then show by their looks and by their weight-chart the result of a sensible bringing up.

Naturally when a baby has been ill or when it has once been spoiled this is not so easy. It would be a grave mistake for a doctor or a nurse to begin to educate an infant when it is in poor health, but when they are called in early they can do a great deal of good in this way, and if this became more universal we would not see so many babies who cry at the least pretext or even without any, who have to have a pacifier in their mouths all the time, and who have to be rocked or held continuously.

In the fourth or fifth month, perhaps even earlier, we can begin to train the infant to keep itself clean. It will soon learn that it will be relieved of the uncomfortable position on the chamber as soon as it has done its duty. Some children learn this very quickly while others are much harder to teach; this has nothing to do with their mental brightness but it is simply a matter of individuality.

With older infants we can start to make them mind comparatively easily if we preserve a quiet but



FIGURE 22. HOW TO CARRY YOUNG INFANT



FIGURE 23. HOW TO CARRY OLDER INFANT

firm demeanour towards them and teach them that angry crying or spells of temper will not succeed in getting for them what they want. Roughness or corporal punishment, or shouting at a baby, must be strictly interdicted; it will so frighten them that they may show the consequences for the rest of their lives. Make a baby understand that it can not have its own will all the time and that it is just as easy, and pleasanter at that, for it to mind and we will usually succeed.

It is also advisable to let a baby have only one toy at a time and we will then be spared the far too frequent sight of the baby of the wealthy which sits in the midst of the most wonderful playthings and who is still bawling for the moon, while its less fortunate brother is contented with a rag doll which has lost all semblance of what it had been.

Babies should be left alone as much as possible; they should not be taken up from a sound sleep to be shown to an admiring circle of relatives and friends, nor should they be taught those "cute" little tricks in which young mothers delight, especially with their first-born. This premature development of the brain is not beneficial; it makes babies old-fashioned and precocious; the result of this will frequently be seen later in life. Older infants should also be left to their own resources as much as possible, as they will then be most contented, nor should they be reproved for the least little thing without any cause, at least as far as they can see.

A young baby may be carried around a little at a

time with its head and back well protected, so that the forearm near the elbow supports the head, the same hand under the buttocks and the other hand supporting the feet (see Fig. 22). The arms should be changed regularly to prevent curvature of the spine.

When the infant can sit up it may also be carried around on the arm with the other hand supporting its back (see Fig. 23), but again we must not forget to change it from one arm to the other so as to make it use both hands equally well.

Babies should never be taught how to walk. When they feel that their legs are strong enough to carry their weight, they will try it themselves, grasping the mother's skirt or a chair, or better still, in their little pen. If taught too early to stand up and walk their legs may become crooked. Walking-chairs and baby-tenders are not good. If the baby does not show any inclination to walk after the completion of its first year the physician should be consulted, though some perfectly healthy babies may be very backward in learning how to do this.

Never pull up a baby by its arms; always support its head and back with your hand. Nor must an infant which is learning how to walk be held by one hand only. Numerous are the cases in which this has caused a fracture of the collar bone or a dislocation of the shoulder, or what is even more serious, injuries to the nerves of the arm.

CHAPTER V

THE FEEDING OF INFANTS

BREAST-FEEDING

EVERY healthy mother must nurse her baby at her own breasts until such time when it is sufficiently developed for other food.

This is the one immutable law of nature; thus only can the mother assure her beloved one of life and health; thus only can she preserve her own health and happiness.

Breast-feeding represents for the young child the transition from the entirely dependent mode of feeding in the mother's womb to the independent feeding of the older child.

Mother's milk coming from the human body is in quantity as well as quality and in the proportion of its different components specially adapted to the needs of the human young. No other kind of food can take its place. It is relatively free from germs and is always provided at the right temperature. It alone deserves the name of a natural food for this stage of life.

Every other food, no matter what its composition, is unnatural. It will demand from the infant labours during its digestion which are by no means normal.

We know from experience that infants who have been fed naturally have a much better chance to live through the first period of life and that they succumb only rarely to disturbances of digestion and nutrition.

Unfortunately we still find a much larger number of children fed unnaturally than is necessary, a most regrettable condition which frightfully increases the mortality among children during the first year of life.

Now what are the causes for this?

Is it viciousness or ignorance, or is it the result of a failure of the breasts to develop?

Certainly not the latter, if we stop to consider that only a hundred years ago or less nearly every woman successfully nursed her offspring.

We will not consider the so-called upper classes—a fine distinction, by the way, in this democratic country of ours—who closely approach in their mode of life the days of degenerate Rome; not the Rome of the republic, but of the last two or three centuries of the empire, when love of pleasure and ease drowned all sense of duty; when women had no time for their children and when they thought they had done more than their duty when they had carried a child and given birth to it and left its bringing up entirely in the hands of menials. This was one of the principal reasons for the downfall of this same mighty empire. Are we in this great land of ours getting ready for the same dry-rot and decay?

Any one who will take the trouble of investigating

this subject will find that at least ninety out of one hundred of all mothers are able to nurse their offspring; in some hospitals even ninety-five succeed in fulfilling this their noblest duty. Why then, may we well ask, can it be possible that at the present time and in this country of ours not more than forty or at most forty-five out of every one hundred women nurse their own babies?

The explanation for this appalling condition can be readily found. Physicians as a rule are not doing their full duty in this respect; they have also been too credulous in accepting some flimsy excuse, brought forward by the grandmother or nurse or some other person, why the young mother could not nurse her child, though they knew full well that this was nothing but thinly veiled unwillingness of performing a most important duty.

Still the great majority of mothers are not vicious but only thoughtless and ignorant of the true conditions. They do not realise of what they deprive their little ones in denying them the only food ever intended to be placed into a baby's mouth, the milk of its own mother. They are misguided by what they read in the daily papers and in their magazines about the many ways in which they can change cow's milk to be the equal or even better than the product of their own breasts. They read little books, written by reputable medical men at that, which give all kinds of more or less complicated formulæ. And, last but not least, they receive by almost every mail, after the birth of the

baby has been filed with the registrar of vital statistics, booklets sent out by the manufacturers of proprietary baby-foods.

Can this condition be changed?

Is it possible to educate the woman of to-day?

Can we make her realise which way her duty points?

We most assuredly can and we are doing so daily.

All the physician has to do is to take the time and trouble, small as it is in comparison to the end in view, to explain matters to the mother and to show her the conditions in their true light.

Women of to-day are better educated and more enlightened than they ever were before and they are therefore more open to sound reasoning and to honest conviction, especially when it is brought forward with the proper amount of healthy enthusiasm instead of in a half-hearted way.

When engaged to attend a pregnant woman in her imminent confinement it is the duty of both the physician and the nurse to talk these things over with the expectant mother. But not enough with this, they must make this duty easier for her when the time of its fulfilment comes.

The time to begin the education of the woman for the task of nursing her future generation begins with the growing girl. She must be preserved from wearing ill-fitting corsets which press upon the nipples and stunt the natural growth of the breasts. If the mother should notice that the nipples of her young daughter are drawn in or if the ever-attentive



FIGURE 24. HOW TO NURSE BABY IN BED



FIGURE 25. HOW TO NURSE BABY SITTING

physician should call her attention to this faulty condition, then she can easily teach the young girl how to remedy this by simple manipulations and by drawing out the nipples gently every morning and evening, and this can be done in such a tactful way that the attention of the girl is in no way drawn to her reproductive organs nor will she be able to guess at the purpose for which this is advised.

Where this has been neglected at the proper time a great deal can be done still, if the prospective mother is instructed early enough to draw out her nipples in order to make these the proper size for the baby to take hold of.

She should also be taught to wash her nipples morning and evening with cold water and to give them a gentle massage at the same time, so as to harden the skin and to prevent its cracking later; this may be the means of saving her a great deal of pain and discomfort in the future.

In order to insure for both the mother and the infant the greatest comfort and the best result during the act of nursing, a great deal depends upon the teaching of young and inexperienced mothers how they should put the baby to the breast.

The breasts should be given alternately only one at a nursing, except in the rare cases where the physician orders otherwise, for some good and sufficient reason.

When the mother wants to nurse her baby in bed, she turns over slightly to one side, her back protected by a pillow, the baby rests on the correspond-

ing lower arm, the free upper hand grasps the lower breast and guides the nipple and part of the areola, the deeply coloured region around the nipple, into the baby's mouth, at the same time keeping the breast itself away from its nose so as to keep the nose free for breathing (see Fig. 24).

At first this is not quite easy, when both the mother and the infant are inexperienced; but with a little patience and by assuming the position just described they will learn it readily. In the beginning it is also advisable to express a few drops of milk to teach the infant what the whole procedure is meant for.

When the mother wants to nurse the baby in a sitting position, she sits in a low chair with a comfortable back and places the infant across her lap, so that its head lies upon the knee corresponding to the breast which she intends to give, the foot of this side resting upon a foot-stool to bring the baby's head opposite the breast. The corresponding hand supports the baby's head, while the thumb and forefinger of the other hand guide the breast into its mouth, at the same time keeping its nose free (see Fig. 25).

A mother who has been taught how to hold her infant during the nursing will be spared a great deal of fruitless work and anxiety and she will also be less liable to the backache which frequently accompanies these first efforts. By making it as easy as possible for the little one she will also experience less trouble from his refusing the breast.

Usually between the second and fifth day after the birth of the child the milk begins to appear in the breasts and at this time the breasts frequently swell considerably. This may be accompanied by a feeling of fulness and pain in the breasts and also by a swelling in the armpits; even a slight rise in the temperature may be observed. A snug, well-fitting bandage which keeps the breasts upward and inward will add greatly to the comfort of the young mother.

In some cases it may take a good deal longer, even as long as six weeks, before the milk is present in sufficient quantities, and in these cases a very considerable amount of patience and persistency is required, both on the part of the mother and the attending physician; but great will be the joy when success at last crowns their faithful efforts.

The length of a meal at the breast should not exceed fifteen minutes as a rule. Careful weighing of a number of babies has shown that they take three quarters of the amount they need during the first eight to ten minutes of each nursing and the rest during the next five minutes; while the nursing, if it was continued any longer, would not do the infant any good and would get it into the bad habit of going to sleep during the act; it would also tire out the mother. Should the breasts give off large quantities of milk and this very easily, then the length of a meal may have to be shortened by the physician.

The amount which the child should receive at each meal varies, naturally, within considerable amounts

according to the age and weight of the infant. By the end of the first week it will take about a pint daily, that is about three ounces at each feeding. At the end of the first month twenty ounces daily or four ounces at each feeding; at the end of the second month about twenty-seven ounces daily or five and one-half ounces at each feeding; at the end of the third month thirty ounces daily or six ounces at each feeding; at the end of the sixth month seven ounces at each one of four breast-feedings, the fifth meal being supplied otherwise as we will explain later.

A simple way of figuring out how much a baby of a certain weight should be getting at the breast is as follows: A healthy baby should receive two and one-half to three ounces of breast-milk for each pound of its weight up till the time it weighs eleven pounds or over, but it should not be given more than about thirty-five ounces of breast-milk a day.

The same number of nursings as described for the new-born, namely five a day, at 6 and 10 A. M. and at 2, 6 and 10 P. M., are given all through the nursing period; nothing is to be given at night. This is the most effective régime in every way and will prove successful in almost all cases. The baby will receive plenty of nourishment for its growth and increase in weight and we take away all chance of its suffering from overfeeding, which is the most frequent source of trouble in infants.

We know from experience that it will take the infant's stomach about three and one-half hours to digest a breast-meal, and to move it down into the

intestine for further digestion and to be taken up into the system. It stands to reason that the stomach of an infant will need some rest between feeding periods the same as that of the adult; therefore the four-hour interval which has been introduced from abroad, and which is finding great favour wherever it is introduced over here, is the most natural and, at the same time, the most hygienic system of nursing an infant.

At night the infant does not need any food. This long rest of the digestive apparatus is necessary to insure its proper working. Should the baby cry a little in the middle of the night we give it some water and it will soon fall asleep again.

The results of this schedule are most happy both as far as the babies and the mothers are concerned. The former are quiet because they are contented and well fed; they do not have to get rid of an overabundance of food by spitting it up, and any apparently healthy baby which spits up some of its food is overfed; they get an early training in regularity which will be of the greatest importance for their whole lives; they get the necessary amount of sleep, both in daytime and at night, which they can not obtain when they are fed oftener, because, for one thing, the frequent act of nursing deprives them of a considerable amount of sleep, and for the other, the overloaded condition of their stomach gives them the colic and gripes which prevents their sleep so frequently during the better part of the night.

The writer has on numerous occasions been called

to examine infants who were considered to be either nervous or ill, because they were crying sometimes all night, while in daytime they were too exhausted to nurse properly and often fell asleep during the act; on placing these infants on the four-hour schedule, five times in twenty-four hours with a full night's rest they took on a decided change for the better at once and developed into healthy and well-behaved babies, to the astonishment and satisfaction of their worried mothers.

As far as the mothers are concerned, this régime will appeal to every one of them who has once tried it. It will give them the necessary time for their housework as well as for their social duties and their recreation, and will thus free them from a kind of slavery which is without the least doubt one of the reasons why so many mothers still object to nursing their infants. It will also insure for them a sufficient amount of sleep, lack of which, undoubtedly, is one of the most frequent causes for an insufficiency in her milk supply.

The objections which are most frequently offered to this schedule have, upon careful investigation, been found to be groundless. The writer has heard frequently from the mouths of physicians that it can not be carried through because the mothers would not do it nine times out of ten; they attribute to the women of to-day and in this country a great deal less intelligence than they possess. The real reason is that they either have not tried it at all, or that they are so half-hearted or so unconvincing

in their advice that its true advantages are not understood.

In his work in infant welfare stations the writer has been almost universally successful in carrying this through with hundreds of nursing mothers, and this to their greatest satisfaction as well as his own. We must remember that the women who come to these benevolent institutions for advice are by no means recruited from the most intelligent strata of society; many are foreign born and a large number do not even understand English and must therefore be instructed by means of an interpreter. They frequently have many other children at home, have to do their housework and their washing, and perhaps keep boarders besides. Add to this that they usually nurse the baby every time it cries, and we will understand that their lot is by no means an easy one and they will be ready to listen to any advice how they can be spared the deadly drudgery which is usually their fate; that they will be able to preserve the bloom of youth on their cheeks and thus retain their attractiveness for their husbands; that they will be able to be a companion to them instead of driving them to the saloon to talk to somebody after the monotony of the day's labour. But we must be convincing and we must go into every detail of the day's routine.

She is to nurse her baby at six in the morning and then put it back into its crib. She has now time to dress, to prepare breakfast and to get the older children off to school. Then she bathes and

this will be the more evident the longer exclusive breast-feeding is persisted in.

The anemia can be easily explained by the almost infinitesimal amounts of iron contained in the breast-milk. The infant has enough reserve iron in its body to last him for the first six months, but after this it needs more iron, which can only be given by additional feeding.

At the completion of the sixth month the baby is given, twice a day, at nine A. M. and at five P. M., one to two teaspoonfuls of the juice of sweet, ripe oranges,* without the addition of sugar and from fruit which is not overripe. Should the oranges be sour the juice may be sweetened by the addition of a little baking powder. Oranges are best because their juice can be easily expressed and because they can now be purchased in this country the whole year around; they also seem to agree best with most infants. Scraped sweet apples† are also good. The finely grated peels of oranges with twice the amount of water and a little sugar may be used as a cheap and efficient substitute for the juice of the oranges, also potato-water.*

As soon as the baby is accustomed to the fruit-juice it is given in the place of the nursing at two P. M. a pap consisting of two teaspoonfuls of farina or cream of wheat, or three rolled zwieback cooked in one-half pint of the best cows' milk.†

During the eighth month another feeding with the

* See recipes, page 284.

† See recipes, page 285.

lose sight of the fact that the unnatural feeding of infants is, at its best, only a makeshift, and a poor one at that; that it is one of the most difficult chapters of the practice of medicine; and that in order to be safe it must be left entirely to the judgment of a physician, preferably the children's specialist, who is familiar with it in all its phases.

We know that many an infant is reared without ever receiving a drop of human milk, but this proves only that the natural resistance and the adaptability of its organism are very great, and it does not controvert by any means the fact that the majority of infants do not possess this faculty and that they are less resistant to diseases of all kinds.

The clearest proof for these statements is found in the mortality statistics which show that at least ten times more bottle-babies die than breast-babies during the first year of their lives.

The usual substitute for human milk is cows' milk, and a glance at the chemical composition of the two will show their material difference in more than one respect. We will find that human milk contains half again as much sugar as does cows' milk; that the albuminous contents of cows' milk are more than twice those of human milk; and that cows' milk contains about four times as much salt as does human milk.

Without going into any details it will be obvious that these differences appear perfectly natural, if we will only consider that cows' milk is the natural food of the calf which can run around soon after

birth, which has a natural protection against the loss of heat from its body in its coat of fur and which is growing comparatively rapidly.

One other fact, which, however, is not obvious from a comparison of the chemical composition of the two kinds of milk, is this, that cows' milk will confer a certain amount of protection against infectious diseases to the calf but not to the infant, which latter can obtain this protection only from the milk of its own species, from human milk.

The breast-fed infant obtains a food which has the exact composition intended by nature for an organism which is weak and the digestive apparatus of which is not yet fully developed; this food leaves the breast at the right temperature in a clean, unadulterated condition and it has to be drawn out of the breast by the laborious method of sucking, which not only prepares the digestive apparatus so that it can take care of it, but by tiring out the child it gives some guarantee against the dangers of over-feeding.

Not so the bottle-baby. This receives a food which demands considerably more work from the digestive apparatus of the child, without, at the same time, being as easily digested. This food does not always come from healthy animals and it may therefore contain the germs of diseases. Instead of its being fed directly from the animal's udder, the way the calf gets it, it is drawn by the unnatural method of milking, during which it is exposed to contamination with germs not only from the hands of the milker

and from the coat of the cow and the air of the stable, but it may be infected with the germs causing tuberculosis, typhoid fever, diphtheria or scarlet fever, which the milker may carry in his system without being aware of this. After milking the cows' milk passes through different containers of more or less doubtful cleanliness, and hours will usually elapse before the baby gets it, during which time the germs can multiply in numbers incredible to and inconceivable for the lay-mind.

The best and highest-priced milk which can be bought and which has been obtained under the most elaborate precautions will very rarely contain less than five thousand germs in less than a quarter of a teaspoonful of the milk, while ordinary milk may contain anywhere from fifty thousand germs up into the millions in the same amount.

A great deal therefore depends upon the source from which the milk for the baby is obtained, though not quite as much as physicians have taught the public to believe, because the time is past when every digestive disturbance in an infant was attributed to the action of germs and to the contamination of the milk with these.

It has been learned that the most important point in the unnatural feeding of infants is the composition of the food, and this is still further proven by the fact that many an infant which has never been given anything but the most expensive and, at the same time, the most carefully procured and kept milk, which was shown by regular examinations to

contain comparatively few germs only, has still suffered from the most severe and even fatal digestive troubles.

The recognition of these facts has led to the adoption of the most diverse, and sometimes the most fanciful and absurd, modifications of cows' milk advocated by different pediatricists. Some of these modifications are so complicated that it is almost impossible to teach the mother or nurse how to prepare these in the home, and various kinds of jars and measures and rotary indicators have been placed on the market, in order to make this easier, which they have by no means done.

Then came the manufacturers of patented and proprietary foods, the number of which is legion. These try to tell us in their blatant advertising in the daily press and in magazines, especially in those intended mostly for women, and also in their "wonderful" little illustrated booklets which they send out broadcast and which they enclose in every one of their packages, how simple it is with the use of their own particular product to make cows' milk equal to or even better than mothers' milk. Who pays for this advertising campaign? Does any one think for one moment that the manufacturer is in this business for humanitarian reasons and not for the money he can extract from the pockets of the unwary? If a member in a family were suffering from typhoid fever or pneumonia would they buy some patent medicine and attempt to treat the patient according to the directions contained in the

folder accompanying it? Of course not. Why then should the ignorant and greedy manufacturer be permitted to teach physicians and mothers how to feed babies?

The one most important ingredient required for the unnatural feeding of infants is what the Lord has given to almost everybody—*Common Sense*.

This should always be employed when one deliberates about what to feed a baby.

The baby must not be fed formulæ but good, sensible combinations of food elements in their proper proportions.

It must be remembered that one has to deal with individuals, infants though they be, who have their likes and dislikes and their idiosyncrasies the same as adults and that these may be either acquired or inherited.

It must be remembered that one has not got to deal with pieces of machinery about which one can say beforehand that they will need so much fuel or so many volts to get the desired results.

This must be kept always before one's mind and one must refrain from any rigid system of feeding infants; then, and then only, will one be successful in most cases, provided one remembers the few general rules now to be enumerated.

The key-note of successful infant-feeding is to keep always before one's mind the fact that the baby requires three ounces of liquid—*mind* liquid, not milk or other food—for every pound of its weight up to forty ounces daily. That means that when the

FIGURE 32. TURNING BOTTLES WITH NIPPLES

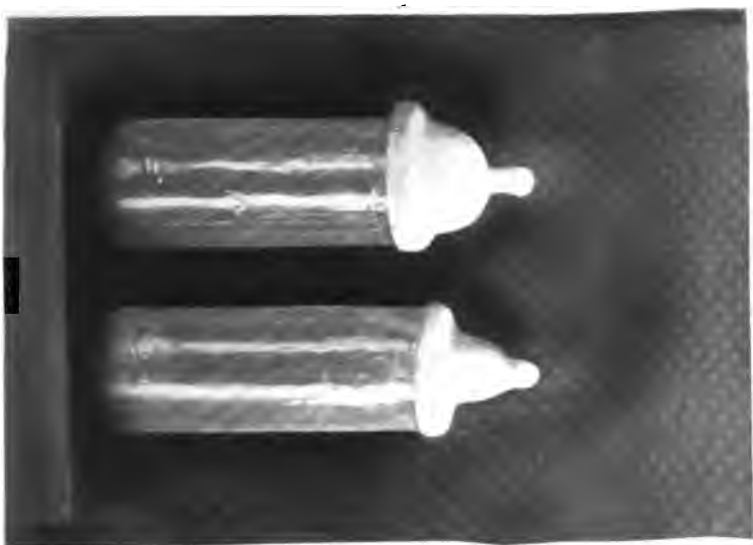


FIGURE 33. HOW TO KEEP FOOD



child's weight will have gone up to and above eleven pounds we may give the limit of forty ounces, but not more.

One must further remember that in order to thrive and to grow the infant requires not less than forty-five calories per pound of its weight, regardless of what that weight might be. One must find out, however, first of all, what the baby's digestive apparatus can take care of, and then, but then only, may one figure out for one's own satisfaction if this food represents the necessary quantity of calories.

In summer the infant requires more water, the same as every one else does, but not too much of it, because this excess would have to be eliminated, not as plain water but as urine, which is a solution of salts of which the body of the infant would consequently be deprived.

One must also get away from the old and worn notion that summer is the worst time for the baby and that digestive disturbances in infants will be observed during that season only. True, more infants die during the hot summer months, but the moist heat is only the last straw in an already impaired system, the foundation for which was laid during the other months. The pediatricist, the children's specialist, sees more of these cases in winter, when the confinement in the bad air of our overheated and underventilated houses exerts its bad effect.

The composition of the food for the baby may be near that of human milk but not necessarily so, and one will observe frequently that a baby will thrive

on a food which is of an entirely different composition.

Of the different elements of the food the proteids, the albuminous part, are the least dangerous and they can therefore be given in comparatively large quantities.

The carbohydrates, comprising the starches and the sugars, can be given up to one-tenth of the whole food. The starches are given in the form of cereal decoctions, especially barley and oats. The sugars used in infant-feeding are milk-sugar, cane-sugar and malt-sugar. Of these the milk-sugar, which is found as a natural ingredient of human as well as animal milk, is the hardest to digest for the baby when added to an artificial food, and many physicians use it less all the time for this reason; the writer has not prescribed milk-sugar for many years and attributes a considerable amount of his success in feeding babies to this fact. Cane-sugar is easier digested by infants, but in many cases nothing will equal the effect of the addition of malt-sugar to the food. It has also been learned, from experience, that two different carbohydrates act better than only one in the food; this may explain why babies thrive better when we add malt-sugar to the food which already contains milk-sugar in the cows' milk, and it has further led to the addition of cereal decoctions which has proven so successful.

Fat, cream, is now universally considered the most dangerous element of the food and the one with which one has to be extremely careful in its adminis-

tration. This is the reason why top-milk mixtures and cream mixtures are now being given up by so many physicians and why they warn against the use of rich milk, as, for instance, Jersey milk for babies and advise instead the use of the milk from Holstein-Friesian cattle, which contains pretty uniformly three and one-half per cent of cream. Perhaps it is not generally known that Jersey calves can frequently not be raised with the milk of their own mothers because this is too rich for them, but have to be fed on the milk of another cow of a breed which furnishes a milk which is less rich.

Sick babies whose digestion has been impaired and who cannot digest cream, the writer has started for some years from an almost fat-free food, such as skim-milk or buttermilk, and this with the best of results; on the other hand he has seen many an infant in whom a pronounced idiosyncrasy against cream, a peculiar susceptibility, had been brought on by the injudicious administration of this fact; with the result that the infant will show symptoms when we increase the cream in its food even slightly.

It is always safer to underfeed an infant, at least until one has had time to find out what its digestive apparatus can take care of, rather than to start with full quantities and to learn then, to one's regret, that valuable time has been lost, because the baby can not stand this strong food and that a weaker one has to be given after all.

Boiling the milk quickly, but not longer than three minutes, is now advised by many, but this is not done

so much to kill the germs, but because it has been found that this procedure makes the proteids of cows' milk easier of digestion.

With these simple general rules one will succeed in quite a few cases to bring the babies up on the bottle. Those that will not thrive offer such serious problems that even the pediatricist will find his knowledge taxed to the limit.

Some babies will thrive on almost anything in the line of food, while others flatly refuse to adapt themselves to even the most wonderful and, seemingly, the most scientific formulæ. The former are those who are advanced as examples for the success of different methods of modification of cows' milk and whose pictures adorn the booklets advertising all kinds of patented and proprietary foods; the latter are the little mites whom one can see in such large numbers in the wards of the children's hospitals and who fill so many, far too many, little graves.

To sum up this subject nothing is required in most cases for the unnatural feeding of infants but common sense, good clean milk, a few things which can be found or easily procured in any well-regulated household, and which will then be much cheaper than if we pay the manufacturer of infant-foods for his extensive advertising. Nor must we ever forget that expense is an important factor in most families.

After the sixth month the baby can be given the mixed diet which has been described for breast-babies of the same age.

Quite naturally the mother or nurse will ask the



FIGURE 34. ICE BOX



FIGURE 35. ELECTRIC BOTTLE HEATER

question, What kind of bottle is the best? Only such nursing bottles should be used which can be easily cleaned and which have no corners in the bottom where rest of food may remain. In his own family as well as in his practice the writer has for years used the straight, jar-like, correctly graduated nursing bottle with a large nipple which can readily be turned inside out for cleaning (see Fig. 32).

The rest of food which the baby did not take at a feeding should be thrown away and the bottle be rinsed at once.

Bottles and nipples should be sterilised by boiling every time before use. The bottles should be turned upside down after this and the nipples should be kept inside of a clean towel, this being preferable to their being kept in a solution, as this is liable to spoil the rubber.

Not less than six bottles with their nipples should be kept on hand in case of breakage, and each new bottle should be boiled for fifteen minutes before using it, to anneal the glass, thus preventing its breaking to some extent at least.

It is advisable to prepare the food in the morning and to place the proper amount into each one of the required number of bottles and then to cover the bottle with a sheet of clean paper kept in place by a rubber band (see Fig. 33); the bottles are best kept in a special little ice-box which should be used for the baby exclusively (see Fig. 34).

When it is time to feed the baby the bottle should be heated to 100 degrees Fahrenheit, either in one

of the very handy little electric heaters (see Fig. 35) or by placing it into a small pitcher of hot water.

Before giving it to the baby the mother or nurse must always test the temperature of the bottle by letting a few drops of the food fall on the back of her hand.

CHAPTER VI

THE DIGESTIVE DISTURBANCES OF INFANTS

EXPLANATION

SUPPOSING we give to a healthy, normal infant for some time overlarge amounts of breast-milk or of a good modification of cows' milk which has the right composition for the age and the weight of this baby, then this *overfeeding*, which may either be the result of too frequent feeding or giving overlarge quantities at each feeding, will overwork the digestive apparatus.

After a time, sometimes sooner, sometimes later, the infant will show by its behaviour that everything is not well with it. Its weight-chart will show irregularities; it will be pale, restless and frequently cross; nature may try to regulate matters by the child's vomiting occasionally and by the evacuation of more frequent and larger stools.

Now would be the time to call in the physician. He would recognise at once the source of the trouble and by regulation of the amount of food to be given and by lengthening the intervals between feedings he could soon have the child restored to perfect health.

Usually, however, the physician is not consulted at

this early stage; the disturbance in the baby's health and behaviour is attributed to other causes, most frequently to teething, and the child's crying is attributed to hunger; the food is still further increased, thus augmenting the trouble and sooner or later leading up to the severer grade of disturbance, a true *dyspepsia*, which is a serious condition in a bottle-baby. Even now, however, the physician could quickly remedy matters by the proper regulation of the diet of the little patient, but, unfortunately, even these severer symptoms are only too frequently not heeded or misunderstood, and when the physician is finally called, he finds the infant in a condition in which the food acts as a poison, causing severe vomiting as well as diarrhea, from which the condition has been called *cholera infantum*, though these symptoms are only the most in evidence and by no means the most important. This *alimentary intoxication*, as we now call it to express its origin, is very serious and may be fatal in a few hours; it is accompanied by sudden considerable losses in weight, a pound or more in twenty-four hours, and a long time is required before the baby will be back to normal health.

In other cases the condition takes a more chronic, though no less serious course, the infant fades away, it becomes extremely thin, with the wrinkled face of a very old person, with sunken eyes and a large red mouth. In this condition the infants are really hungry but their power of digesting food has been lost almost entirely; they live on their own body sub-

stance; therefore this stage is now called *decomposition* or atrophy.

Much more rarely do we observe the opposite condition where the infant is suffering from *underfeeding*, though this may arise from an insufficient amount of milk that the mother can offer her child from her breasts or in artificially fed babies, owing to the well-founded fear of overfeeding on the part of the mother. As long as this has not lasted too long this will not be serious, but after a time the baby may get too weak to take even the little food offered to it.

An infant which has been fed for too long a time on milk exclusively, especially one which is too rich in cream, or on a mixture which contains too much starch or sugar, or both together, such as most of the patented and proprietary foods, will also show severe disturbances in its health from this *one-sided overfeeding*, and no class of digestive disturbances is more frequently seen by the physician. The appearance of these babies may be very deceptive; they may look stout and healthy, though a little pale, but let these children acquire a light infection and there will be a catastrophe. The usual story the physician hears when he is finally called to see one of these patients is, that the child was fed one after another of the different kinds of modifications of cows' milk and the various proprietary foods, on all of which it seemed to thrive for about two weeks, when a change had to be made for some reason or other. It is almost miraculous how quickly these babies will often

respond to the proper administration of a well-balanced diet.

Contrary to the opinion still held by many *infection of the stomach and intestine* and the germs usually found in milk which has not been obtained or kept carefully can only relatively rarely be held responsible for sickness in infants; much more frequent and, therefore, more important, are the *general infections* which may attack a baby; a slight infection, such as an ordinary cold in the head which would at the most be an inconvenience in an older child or an adult, will seriously affect the digestive apparatus of the infant, in whom digestion and growth are the two most important functions of life; and even an infant which has so far been perfectly healthy will respond to such an infection with a considerable loss in weight.

The effect of *heat* upon the infant is twofold. The high temperature and moisture in the atmosphere of the summer months may cause the symptoms of sunstroke; this is mostly seen in the densely populated districts of our large cities where no air can pass through the cañons between the houses and where parks and breathing-spots are few and far between, where the fire-escape is often the only means of getting what little relief may be obtained and where, owing to the crowded conditions and the poverty, the baby has to spend its days in the same single room in which the washing and the cooking is done.

Or, the digestion of the baby may be slightly im-

paired by the heat, and if it is given the same amount of food as before or if it should even receive more food, instead of water, it will suffer from overfeeding and its bad effects. The proper regulation of the baby's clothing at this time is also of great importance.

The inherited and, to some extent, the acquired *constitution* of the child is also of the greatest importance, and we will, no matter how healthy a baby may look, never be able to foretell how it will thrive even at its mother's breast. These conditions are only now being recognised in their true light and their influence being duly considered.

Needless to add that malformations either of the digestive tract or other parts of the body may have a serious influence upon the infant's digestion.

THE TREATMENT

In the foregoing pages the writer has attempted to give a clear and concise idea of the difficulties which confront us in the cases of these infants and of the complex pictures which we are liable to meet with.

He has long held the view, and he has forcibly expressed this at many occasions, that this is a field in which a great deal of harm can be done and is usually done by the laity. This is a domain which belongs entirely to the physician who has had the advantage of special training in the feeding of infants and who can note even slight changes in the

condition of the baby, long before the mother or nurse realise that everything is not well.

We have learned the lesson in other matters pertaining to medicine that "prevention is better than cure"; why not in this which means so much for the future welfare of the child?

Why should we allow the writers of little books or the greedy manufacturer of baby-foods to place in the hands of the mother or the nurse a number of formulæ, from which to choose in a more or less haphazard way; or why should we allow the grandmother or aunt or even the neighbour, who claims to know a great deal about infant-feeding because she has borne a number of children, though she does not tell us how many of these she has lost from digestive disturbances—why should we let all of these give their gratuitous advice? Why should the mother wait until the baby has suffered severely in its health, and then only call in the physician to repair the damage done?

Would it not be much more sensible to place the feeding of the infant from the very first into the hands of a competent physician, whose duty it would then be to see to it that the infant remains well and thrives in a normal way?

Anybody who has had some experience with infants will realise that this would save the mother a great deal of anxiety and a great many sleepless nights, and would save the baby from many a sickness which weakens its system.

This is the reason why the writer has refrained

from giving any detailed advice about the different kinds of food to be given to babies; in fact it is one of the reasons why this book has been prepared.

The feeding of well infants is a difficult matter; the feeding of infants with digestive disturbances is extremely difficult and requires that every order of the physician should be carried out in its minutest detail and that the time for feeding should be observed by the watch. Thus only will the physician be able to do his very best for his little patient. In order to carry out the physician's orders the mother or nurse should ask him to write his formulæ and his directions in the form of a prescription, and to write a new prescription every time he makes the slightest change. Only by hearty co-operation on the part of all concerned will the baby regain its health in many cases.

CHAPTER VII

TEETHING

BEFORE discussing the diseases of infancy we must speak of a normal process about which a great many superstitions and old-fashioned notions are still in circulation, not only among the laity but even among physicians—we refer to “*teething*.”

Many an infant will get through the first half of its first year apparently in perfect health, but in the second half it may show some disturbances which are really due to the change in the food owing to improper weaning, or to the bad effects of unnatural feeding which begin to appear only now. As this is also the period of life when the teeth begin to appear, though they had been preformed long before this, what more natural than that every indisposition of the infant should be referred to this normal process of development!

If we were asked if teething of itself causes any of the diverse troubles, so frequently observed at this age, we would have to answer this question most decidedly and most emphatically in the negative.

True, some very few children will have some increase in salivation; they may even have an uncom-

fortable feeling in the elevated gums, but beyond this nothing can be attributed to teething. In more than ninety-nine out of one hundred of the cases in which teething is accused of interfering with the child's health, the careful physician will be able to find another definite cause.

The fact that teething is still so often blamed for all kinds of illness results in this, that the nature of the illness is not ascertained in time—the physician is called in late and he has to repair the damage already done.

The necklaces we see placed around the necks of teething infants are either relics of barbarous times, or are taken over from the woodoo-medicine of former African slaves, and they are surely not a sign of intelligence in this supposedly enlightened age.

The different kinds of roots and so on, for the baby to bite on, can as a rule not be cleaned properly, the inflammation of the gums, and the profuse salivation caused by the infection from these are then attributed to the teething.

If we want to indulge the baby in its natural desire to chew something, we can give it something better and cleaner, and therefore less dangerous, in the shape of silver or plated spoon, naturally without sharp edges, which can be kept clean by simple boiling.

So-called teething or soothing medicines can not be condemned too severely; there is not one of these but which contains some dangerous sleep-producing drug or quieting narcotic; numerous are the cases

in which the writer had to use his best efforts in saving some little charge of his from an untimely death, after it had been given one of these preparations.

Most applications to the gums are useless and therefore superfluous.

Cutting or lancing of the gums is fortunately getting obsolete, but many a child has lost one or more of its teeth owing to an infection in the wound thus produced. Moreover we will usually observe that the wound will be healed before the tooth has come through, and the resulting scar will delay still further its appearance.

Let us remember therefore that babies get their teeth, which have been preformed at their birth and which are growing all the time, without any trouble and that the cause of an illness at this time must be determined by the physician, and that at once.

Let the laity understand that any physician who states that a given illness is caused by the teething, is either too ignorant or too indolent to try to find out the real cause of it and that he is therefore not a safe person with whom to entrust the health of one's child.

CHAPTER VIII

THE PREMATURE INFANT

THE human young born into this world ahead of its allotted time of nine calendar months of life within its mother's womb has to start the battle for its existence handicapped by an immature organism. Remembering the rather large demands which these new duties make upon the organism of the infant born at term and how they tax its powers to the limit, we will readily understand what this will mean for the premature and how our efforts for the preservation of the little mite will be taxed to their limit.

The most difficult problem confronting the organism of the premature newborn is the maintenance of its body-heat. Its relative surface is considerably larger even than that of the mature infant and the chance for its giving off heat into its surroundings must therefore be correspondingly larger; at the same time the amount of protecting fat under its skin is considerably less and its apparatus for the regulation of heat is entirely inadequate. If we add to this that its digestive apparatus is likewise not yet up to the demands of independent life and that it can therefore digest only small amounts of

nourishment, while it would have to be burdened far in excess of its actual powers in order to make up the loss of energy consequent to the larger loss of heat, then we can fully understand and appreciate the problems we have to solve and the considerable ingenuity we have to exercise.

Our first and principal duty consists in diminishing the loss of heat from the surface of the body of the newborn premature infant; this we succeed in doing by keeping the temperature surrounding the child near that of its body. We have found in practice that the most favourable temperature lies closely around eighty-six degrees Fahrenheit; if the temperature should go down to less the child will react with a subnormal temperature of its body; if higher it will suffer from heat-congestion, a condition which corresponds closely to the effect of extreme summer-heat in the adult.

Even the slightest cooling, especially during the exposure in the bath or while these children are washed or changed, will not only subject them to a fall in their temperature, but it will also cause a standstill or even a loss in their weight, because the abstraction of heat, slight as it may appear, will deprive the system of the small surplus of energy which could have been used for a gain in weight. This surplus of energy in premature infants is at its best only infinitesimal in comparison to their relatively large demand for food.

The premature infant needs human milk even more than does the mature newborn. But the large

FIGURE 27. IMPROVED INCUBATOR



FIGURE 28. AUTOMATIC INCUBATOR



amounts it would really require can not be given with safety during the first few days, as they would cause dyspepsia by overtaxing the powers of the weak digestive organs. We must be extremely careful with the feeding and we will have to be satisfied if we can give in the beginning from two to three ounces daily and if we should succeed in reaching the necessary amounts in about four weeks. The infant will, naturally, not gain during this time; it may, quite likely, lose a little in weight, but this will be preferable to one's taking any chances at over-feeding, the more so as even a slight dyspepsia may prove fatal.

Breathing is frequently insufficient in the premature and the lungs fail to expand properly as a consequence. This is recognised by the fact that the lusty cry of the normal newborn is replaced by a moaning whine and also by the blue colour of the skin.

All kinds of infection, even a slight cold in the head, are extremely dangerous for the premature.

Our chances of being able to raise a premature infant depend foremost on its weight at birth. With those weighing two pounds or less we will only succeed in very rare instances, while every additional quarter of a pound will make the outlook so much more promising. The outcome depends, however, upon the care we can provide for these little mites, if we can keep them in an even and sufficiently high temperature and if we are able to prevent all forms

of infection, and, last but not least, if we can offer them the best of food, *human milk*.

From the foregoing it can be seen how much hinges upon the question of supplying these infants with sufficient heat. In hospitals and among the wealthy we can do this with an apparatus built upon the principle of the brooder, so-called incubators, furnished with automatic arrangements to keep the temperature always at eighty-six degrees Fahrenheit and for supplying at the same time a sufficient amount of warm, pure, moist air; but these apparatuses get out of order very easily and are hard to handle by the inexperienced (see Fig. 36).

In his private practice as well as in his institutional work the writer has used, with the best of results, simple incubators, with or without cover, in which the heat is supplied by hot water containers. These are easily ventilated and can be moved around as they stand on castors (see Fig. 38).

Among those who are less endowed with worldly goods and in the country, away from the surgical supply-houses, one succeeds with the simplest of means and with material which may be at hand anywhere. Here we wrap the child in absorbent cotton or in six layers of an ordinary woollen blanket, without any clothing, and we place at each side of the child two hot-water bottles or quart fruit-jars; one of these is changed every hour day and night, so that all are renewed in the course of every four hours. These heating devices must be placed outside of the blanket (see Fig. 37). Under these conditions

FIGURE 38. MOVABLE INCUBATOR



FIGURE 39. BRECK FEEDER



we must naturally dispense with supplying the warmed air of the large automatic incubators, but even then our results are often excellent.

How long should these infants be kept in the incubator?

As soon as a regular steady gain in weight is established the surrounding temperature may be reduced very gradually under a continuous control of the baby's weight and temperature; abrupt changes must be avoided most sedulously.

The thoughtful tender care and unrelaxing watchfulness required by these cases is possessed by only a few women, and the writer has observed that the success in rearing these cases is largely due to the personality of the nurse, some of whom will be able to carry cases through to unexpected results, where other nurses, even those most experienced in their work in general, would most probably have failed.

Human milk is the only proper food for these cases, but as the premature infant is usually too weak to draw this itself, the breasts must be pumped mechanically, and they would soon dry up owing to the lack of the normal stimulation of the sucking infant, no matter how careful and how regular we are in pumping the breasts. The most universally successful plan is to put a healthy, strong and well-nursing baby to the breasts of the mother of the premature infant and to give the latter some of the milk expressed after the healthy infant has nursed, because this milk contains more fat and therefore more energy in smaller amounts; we also know from

experience that the premature infant can digest this comparatively rich food very well.

It is frequently quite difficult to make these infants take any food at all, and in many cases we will succeed best by giving it drop by drop with a medicine dropper or Breck feeder (see Fig. 39). Here again experience with these cases counts for a great deal.

Another difficulty in rearing these infants consists in preventing complications from the lungs due to the insufficient breathing. This can frequently be accomplished by making the children cry by shaking them rather strongly or even pinching them if necessary; if this should not succeed we have to resort to cold showers given while the child is in a warm bath; needless to say that this procedure must be done so as to avoid chilling the infant, and to do this will tax to the utmost the skill of a very experienced nurse.

A grave problem is also how to guard these babies against the invasion of germs, because they have not the least resistance against these, and even the slightest infection may cause a severe, perhaps a fatal, illness. A cold in the head contracted from a slight cold of the nurse or a casual visitor may cause an inflammation of the lung or the ear followed by general blood-poisoning; therefore in order to succeed in these cases it is essential to keep all visitors away from these babies, and if the nurse or the mother should be so unfortunate as to contract a cold, they should wear a gauze mask (see Fig. 40)

whenever they come close to the infant. Infection of the navel in these cases means certain death. The old-fashioned and superfluous practice of wiping out the baby's mouth may, and will most likely, lead to injuries of the lining of the mouth and it may thus open the road to a general infection.

Needless to say that even after the infant has been safely steered past these dangers and has been carried through the first weeks of life by constant care and watchfulness, it will remain backward and be like a tender hot-house plant for some time, though later in life it will not suffer from any handicap by reason of its having been born prematurely.

CHAPTER IX

THE DISEASES OF INFANCY

WE have seen that the most frequent diseases of infancy are those due to digestive disturbances, but other diseases are liable to attack the young child, and the mother should be somewhat familiar with these, so as to be able to recognise them early enough to seek the physician's advice.

Constipation. This frequent trouble is usually due to overfeeding and the consequent relaxation of the overtaxed and tired intestine. The pernicious habit of treating this condition by laxative medicines or by the rectal application of suppositories or by bowel-washes can not be too strongly condemned, not only because one can readily imagine the baneful effect of the habitual use of drugs in infants, but also because the use of any of these measures allows the condition to become worse, instead of the physician's getting at the root of the evil and attacking its cause.

Sometimes constipation may also be due to starvation or to the fact that the food is too concentrated and that the baby is not given enough water.

In other cases again it may be due to local conditions in the lower bowel, or careful examination may

reveal a small crack in the lining of the lower bowel where it joins the skin, a so-called fissure; in which condition the passage of the stools causes considerable pain so that the baby is afraid of its passage and holds it back. These cases are not difficult to recognise. The infant cries with pain when it passes its stool, while it is otherwise normal. The physician is able to heal this in comparatively little time.

Diarrhœa. This is in the beginning nature's own help to rid the intestine of irritating material and it is always the consequence of bad feeding or of an infection. It would be wrong to stop it at once by administering constipating drugs; much better would it be to aid nature in its good intent by the administration of castor oil, the only physic fit to be given to infants and children.

Should the emptying of the bowels not stop the diarrhœa, then the physician must be called before an inflammation of the lining of the intestine develops.

Inflammation of the lining of the mouth is frequently due to the pernicious as well as superfluous habit of wiping out the infant's mouth, which is still practised as an outgrowth of mistaken and exaggerated ideas of antisepsis. Sharp-edged toys, whose cleanliness is not always above suspicion, and the dirty pacifiers are another frequent source of these infections, which at times may eat so deeply into the tender tissues as to destroy some of the teeth in their formation.

Thrush or white-mouth is caused by the growth of

a certain fungus in the mouth, where it forms larger or smaller white spots. At times the whole mouth may be covered by these; it is only found in infants who are fed badly and are therefore suffering from some digestive disturbance. Its presence in the mouth of an apparently healthy baby should make the mother call in the physician, who will find that a change in the child's diet is indicated. As soon as the digestion has been improved it will be easy to cure the thrush.

Should the unboiled milk from cattle suffering from hoof and mouth disease be given to children, then they will suffer from a severe inflammation of the mouth, the so-called *stomatitis aphthosa*. Since we boil the milk in all cases this disease is no longer observed by us.

Grippe. Corresponding to the increased mortality among infants in summer we will also observe a similar increase of the deaths among infants under one year of life in winter. This is due to the increase of the diseases of the respiratory tract during this season, and it is caused by an infection with the grippe germs, which is very readily transmitted from one person to the other and to which children are extremely sensitive.

Formerly we used to consider this infection to be "a cold," and thought that it came from drafts and wet feet, but lately we have learned that it is nothing else but a very infectious disease, which at the same time is the more dangerous the younger the patient.

In children's hospitals and orphan asylums we can observe how a physician or a nurse suffering from a coryza, a so-called "cold in the head," will infect many children, who in their turn again will infect every child in this ward, and this while the babies are most carefully guarded against all kinds of draft and chilling; we can, on the other hand, keep these same infants free from this infection if we only protect them against each other by gauze screens and by making any doctor or nurse or visitor who has a coryza wear a gauze mask in front of their mouth and nose whenever they come near the infants.

In private families we can always trace this infection to some inconsiderate visitor who approaches the baby and even kisses it while he is himself infected, or to the other children in the family or the parents or servants. One such infection will usually go through the whole household and the poor baby is the one who has to suffer the most from it.

If we want to protect infants from grippe and its dangerous complications we must be firm in keeping visitors away from them, no matter how much they may object to what they call new-fangled notions, and we must never allow anybody to kiss a baby, especially on the mouth. Even the fond mother would be kinder to her little one if she made it a rule to kiss her child on the cheeks or forehead but never on the mouth.

The usual beginning of a grippe is a coryza or a rhinitis, commonly called a "cold in the head." The

child sneezes; it is restless and bad-tempered; sleep and feeding are interfered with owing to the swelling in the anterior part of the nose, because infants have not yet acquired the pernicious habit of breathing through the mouth, which, by the way, was considered the height of impoliteness among our American Indians, who despised a person who "breathed like a dog." Fever is present as a rule but it is moderate. The next day, when the nose begins to run, will usually bring some relief.

In some cases the infection will not be confined to the anterior part of the nose only, but it will go back where the nose joins the mouth. The whole cavity of the nose will be infected, whence the infection will spread over the rear wall of the nose and mouth, the soft palate and the tonsils; these parts will be red on inspection; the glands in the neck and those under the jaw will be swollen.

If the infection should go still farther down it will cause a swelling in the throat and the windpipe, and we will now observe the terrifying picture of a condition which is, however, not at all dangerous, the so-called spasmodic croup or pseudo-croup. A child which has been suffering from a coryza goes to bed in apparent good health to wake up suddenly during the fore part of the night with the symptoms of suffocation and a loud barking cough, which reminds one very much of whooping cough, though it is continuous; the child may get some relief after vomiting. After the attack has been relieved by some simple measure, such as the inhalation of steam or

a wet compress around the throat, the child will go to sleep again.

These attacks of pseudo-croup will get the whole family out of bed and the physician will be called in a great hurry. Some children and some families seem to be more disposed toward it than others. An experienced physician will often be able to predict the occurrence of such an attack and he will be able to advise the necessary procedures beforehand, even though he can not always prevent their occurrence.

Should the infection go still further down in the respiratory tract it will cause a bronchitis and even a pneumonia, one of the most dangerous diseases of infancy, especially for bottle-babies, whose digestion will always be seriously interfered with.

Thus we will see that even a so-called "slight cold" is always to be considered a serious matter in a young child and requires careful attention, because thus only may we be able to prevent the more serious complications, and that not always.

The infection of grippe may ascend from the posterior part of the nose through passages, which are relatively wide in infants, into the *middle ear* and may here cause a serious inflammation.

This is of very frequent occurrence in infants. They will be feverish and cry a great deal and if the physician is not called at once the explanation of the child's illness will be found, after a delay of some days and considerable needless suffering on the part of the baby, in a discharge from one or both

ears, which will require very careful and long-continued treatment to save the child from permanent deafness or impaired hearing.

In this connection we may state that the old barbarous fashion of piercing the lobes of the ears of little girls, though it is dying out to some extent, is still practised, and that this frequently leads to infections which may extend to the inner ear.

The *irritation of the skin* around the lower opening of the bowel, the anus, and on the buttocks is due to the condition of the urine and the stools and it is found usually in infants with diarrhœa; great care on the part of the mother or nurse and frequent changing of the napkin will almost always prevent this. Once it has started it will be cured only when the digestion is normal once more.

The development of *boils* is favoured by the lowered vitality due to digestive disturbances and the consequent diminished resistance to infection; it is therefore almost exclusively observed in bottle-babies, and of these those who are overfed with starches furnish the greatest number. Lack of cleanliness is a contributory cause.

The size of the single infected spots may vary considerably; it may be no larger than a cherry-pit, or it may form tremendous abscesses covering or undermining at times the larger part of the back or the scalp.

In these cases we should give breast-milk whenever this is possible, partly because it will repair the digestive disorder sooner than any other food,

and partly because it confers some resistance to the germs which will be noticed even before the human milk has improved the alimentary condition.

Tuberculosis. That tuberculosis is a frequent disease in infancy and that it is also a very dangerous infection at that age is shown by the fact that twice as many children die during the first two years from this disease than do people of from fifteen to thirty years. Of the children under one year who are infected with the germ of tuberculosis none will survive.

The infection is usually carried by the mother or nurse who has, what is called, an open consumption, that means she ejects tubercle bacilli not only when she coughs but also when she talks. Through the close proximity, especially of the nursing mother, infection may and will take place very readily. It is however not necessary to have a tuberculous person in constant close contact with a baby in order that this should become infected; many a case has been traced to a single short visit of some tuberculous person or a kiss from an infected relative.

Later when the baby begins to creep around on the floor or when it has frequent falls, in its early attempts at walking, it is exposed to the infection from the dried expectoration of perhaps some former inhabitant of the dwelling whose habits of cleanliness were not above reproach, and who was therefore not careful about the disposal of his sputum.

People are very careless in moving into houses which have been occupied before, especially when

the floors are of soft wood with cracks between the boards, which form a favourable receptacle for dried expectorations in which the tubercle bacillus can preserve its vitality for a long time.

The creeping infant is then frequently exposed to this dust, which can not be removed even by the most careful methods of ordinary house-cleaning, and it will inhale the germs. These will either settle in the lungs or in the glands in the chest, or the baby may injure itself in one of its frequent falls and this injured part will form a good place for the growth of the germs which are circulating in the system, and thus will cause now or later a tuberculosis of a bone or joint.

The writer is certain that the very low little sul-kies and carts which are so much in use now are also dangerous in this respect, because they bring the children into close proximity to the street-dust which is notoriously dangerous in this country where expectoration is not yet recognised as one of the filthiest as well as a most unsanitary habit.

Syphilis. This is a very dangerous inherited disease. It may also be transferred by the wet-nurse and by close contact with infected people, or when the baby is allowed to place some article in its mouth which had been in the mouth of an infected person.

One of the earliest and most characteristic signs of the disease in infants is a peculiar sawing noise produced when the air goes through the narrowed nostrils. All kinds of skin-eruptions, principally on the palms of the hands and the soles of the feet, and



FIGURE 40. GAUZE MASK



FIGURE 41. ECZEMA CUFF



FIGURE 42. ECZEMA CUFF APPLIED

also inflammations around the nails and the lips are frequently observed.

These infants, when born alive, frequently remain weakly and do not thrive. They are greatly in need of human milk and they must therefore be nursed by their mothers, who, for obvious reasons, will not be infected by them; they must never be given to a wet-nurse, whom they will be almost sure to infect, but if the mother has no nourishment for them they should be given breast-milk from the bottle.

Every case of this kind demands early and long-continued treatment and medical supervision for years; thus only will we succeed in overcoming the inherited taint and its consequences.

Neglected cases and those which are not recognised in time are the ones in which the disease will manifest itself at some later age; these are the unfortunates who populate our institutions for the blind, the deaf and dumb, and the defectives.

Rickets. Rachitis is a constitutional disorder which appears usually during the second half of the first year of life and the principal signs of which are found in the bones.

These babies either learn to sit up or walk rather late, or they may give this up after they have been able to do so; the large fontanel will be open much past the first year of life and it will remain wide; the joints, especially the wrists and ankles, are thickened and set off. At the juncture of the bony ribs and the cartilages we find bead-shaped thickenings which form together the so-called rachitic ro-

sary; the skull, especially the back part of it, becomes soft, and the children perspire very freely over this part of the head; this in turn leads to their rubbing their head on the pillow and thus the hair is worn off. The traction of the diaphragm on the soft lower ribs may draw these inward and thus interfere with the full expansion of the lungs.

If these babies who are suffering from the severer grades of rickets are permitted to walk they will become bow-legged or if they are carried around on the same arm always, they will have deformities of the spine, at times of the severest grades.

The cause of rachitis may be summed up in a few words; it is due to ignorance or neglect or a combination of both; hereditary disposition seems to play a material part in its occurrence, especially among coloured and Italian babies, but we know from a large experience with numerous children in the same families, that this hereditary disposition can be overcome quite easily by the proper precautions. Rickets is the consequence of bad feeding, even at the breast, lack of fresh pure air and insufficient or wrong care. The bad feeding may be found in breast-babies who are overfed and who are kept at the breast exclusively for too long a time; in bottle-babies the feeding may be one-sided or overfeeding may be practised. The effect of bad air can be observed principally during the winter months, when the infants are kept in the close atmosphere of the dwelling and are but rarely taken out for an airing. The poor care consists in the too rare changing of

the infants, in consequence of which the air around these children is continuously overcharged with the ammonia from the disintegrating urine in the diapers and in the bedding, and the poor infant has to inhale this all the time. In the practice among the poorer classes the physician can frequently tell that a baby will be found to have rickets when he perceives the peculiar ammoniacal odour on approaching his little patient's bed-side.

Babies with rickets cry a great deal owing to the pains they suffer in their bones, especially when they are handled, they demand a considerable amount of care to prevent the various forms of deformities which in later years will lead the child into the hands of the orthopedist in still far too many instances.

Rachitis is a disease which can be easily prevented, at least to some extent, by proper hygiene and which, when taken under treatment in the very beginning, can be cured readily; every severe case of this disease, as we see them so frequently on the streets, is a damaging testimony of somebody's ignorance or neglect.

Infantile Scurvy. This is another disease which is caused by bad feeding. It is found exclusively in bottle-babies; it requires a special disposition of the infant and it usually appears between the sixth and eighteenth month of life. It is frequently associated with rickets.

The symptoms of scurvy are severe anemia, swelling on the bones and severe pains on motion and when the child is taken up, bleeding and swelling of

the gums, but this only when the child has some of his teeth or when they are just coming through, and then around the teeth only. Bloody urine and bleeding into the skin may also be observed.

Most of these cases respond very quickly to a proper regulation of the diet when the physician has been consulted in time. The early administration of orange juice and of vegetables to babies is a sure preventative.

Lymphatism. Of late a peculiar constitutional condition has been recognised which predisposes to swelling of the lymphatic apparatus, and we begin to understand the relation of this condition to some abnormal symptoms in children which we were formerly unable to explain.

These children are subject to enlargement of the glands, which in later years may lead to adenoids and enlarged tonsils, and also to appendicitis; they are very little resistant to grippy infections and have frequent attacks of bronchitis, also, by no means rarely, asthma. Their whole body is waterlogged, and when they get eczema this is usually of the moist, weeping type; when exposed to an infection with the tubercle bacillus they are a ready prey to its ravages.

This constitutional condition is an inherited one and we often hear that one or more members of the immediate family are suffering from some chronic complaint, not rarely asthma.

The inherited tendency to this constitutional dis-

position can be overcome by careful regulation of the diet and by hygienic living.

Convulsions in infants are due to a nervous hyperexcitability and are most frequently due to over-feeding, especially with cows' milk, and they appear mostly at the end of winter. They may be either general, a condition which is sure to frighten the mother, or they may affect only the throat, the so-called staying away or internal convulsions, or they may also be observed in the extremities only. Some children get convulsions every time they are sick.

The best remedies for this condition are careful hygiene and proper regulation of the diet; young children should be given breast-milk; in older ones large amounts of animal food should be avoided.

During the general convulsion nothing is better for the little patient than absolute rest, which is preferable to the excitement and bustling activity usually prevailing. It is of the greatest importance to keep out solicitous friends and neighbours with their well-meant but unsolicited and more or less phantastic advice. Naturally the physician must be called at once.

Eczema. In most infants we find an increased secretion from the fat-producing glands in the scalp, and to a lesser degree in the eye-brows. If this secretion on the scalp is allowed to remain, the formation of thick yellow scales will take place and later that of crusts; under these the scalp will at first remain normal or show only a slight reddening, but ere long we will be able to observe how the skin

under these crusts contains small swellings which will soon form little blisters and we now have the picture of eczema. This will spread over the face and behind the ears and also in the neck. In some cases the trouble may also start in the face or behind the ears, where we notice redness and roughness of the skin, which will sooner or later change into eczema, if it is not treated at once.

The disposition to eczema is undoubtedly inherited, and we see it most frequently in fat babies; breast-babies are quite as liable to this disorder as are those brought up on the bottle. Still, feeding has a great deal to do with the production of eczema; almost invariably we will find that the infant was overfed. On the other hand we can observe how an existing eczema heals when the infant is suffering from some acute disease, as pneumonia, to reappear when the child is well again.

The fully developed eczema which may cover the entire scalp, the face and other parts of the body is one of the most obstinate diseases to treat, and the poor infants who suffer a great deal from the itching and who therefore want to dig their nails into their skin require a great amount of care.

The scratching which exposes the child to infections of the skin must be prevented at all cost. This can be done best by taking some old corset stays, cutting these down to the required length and sewing them between two layers of strong cloth and providing this with tape to tie around the child's arms (see Fig. 41) so that it can no longer bend its

arm at the elbow and thus reach the itching spots (see Fig. 42). This is the simplest, safest and at the same time the most humane method of preventing the dangerous scratching. These cuffs can be easily made and are washable.

Prevention is of the utmost importance in eczema. The scabs or crusts on the scalp should be removed daily after the bath; if they should not be easily removable or if they should have been allowed to become rather extensive, a layer of absorbent cotton should be soaked with olive oil or sweet-almond oil and applied in the evening; over this should be placed a piece of oil-silk and the whole should be kept in place by a cap; next morning the scalp can be cleaned easily.

The treatment of eczema should always be in the hands of the children's specialist who is familiar with the effect of diet, by which alone quite a number of these cases may be cured. If the eczema should be very extensive and of long duration he may call in his friend the skin-specialist for suggestions as to the local treatment, but he should always keep the case under his own supervision.

CHAPTER X

THE DEVELOPMENT OF THE CHILD

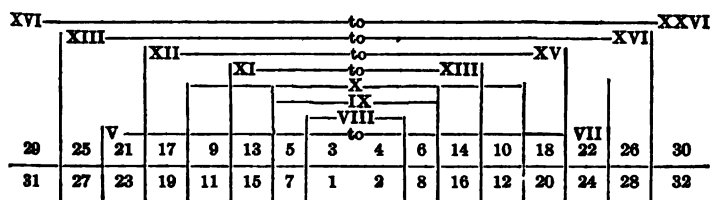
WITH the time of weaning and the eruption of the teeth the infant passes into the stage of childhood, which in its turn lasts until the period of puberty, the time when the children mature. We will therefore see that childhood extends from the end of the first year of life to about the end of the fifteenth year.

The growth during childhood, while not as rapid as during infancy, is quite regular as shown in the following table:

BOYS				AGE	GIRLS			
Wght., in lbs.	Hght., Ins.	Chest, Ins.	Head, Ins.		Wght., in lbs.	Hght., Ins.	Chest, Ins.	Head, Ins.
7.5	20.6	13.4	13.9	Birth	7.2	20.5	13.0	13.5
16.0	25.4	16.5	17.0	6 mos.	15.5	25.0	16.1	16.6
20.5	29.0	18.0	18.0	12 mos.	19.8	28.7	17.4	17.6
22.8	30.0	18.5	18.5	18 mos.	22.0	29.7	18.0	18.0
26.5	32.5	19.0	18.9	2 yrs.	25.5	32.5	18.5	18.6
31.2	35.0	20.1	19.3	3 yrs.	30.0	35.0	19.8	19.0
35.0	38.0	20.7	19.7	4 yrs.	34.0	38.0	20.5	19.5
41.2	41.7	21.5	20.5	5 yrs.	39.8	41.4	21.0	20.2
45.1	44.1	23.2		6 yrs.	43.8	43.6	22.8	
49.5	46.2	23.7		7 yrs.	48.0	45.9	23.3	
54.5	48.2	24.4		8 yrs.	52.9	48.0	23.8	
60.0	50.1	25.1		9 yrs.	57.5	49.6	24.5	
66.6	52.2	25.8	21.0	10 yrs.	64.1	51.8	24.7	20.7
72.4	54.0	26.4		11 yrs.	70.3	53.8	25.8	
79.8	55.8	27.0		12 yrs.	81.4	57.1	26.8	
88.3	58.2	27.7		13 yrs.	91.2	58.7	28.0	
99.3	61.0	28.8		14 yrs.	100.3	60.3	29.2	
110.8	63.0	30.0	21.8	15 yrs.	108.4	61.4	30.3	21.5
123.7	65.6	31.2		16 yrs.	113.0	61.7	30.8	

A remarkable fact which has been indicated in the above table by italics is this, that between the ages of twelve and fourteen years girls grow faster than boys and are at the same time heavier as well as taller; after this age the boys outstrip the girls again.

The second dentition takes place from the sixth year on. First appear the four permanent molars, usually between the fifth and seventh year, then the milk-teeth are replaced by the permanent teeth, and finally the second molars come through about the time puberty will be established; the third molars or wisdom-teeth come still later:



Little more need be said about the further development of the child, mental as well as physical; with the proper care it will go on in its even tenor; without this it will frequently be interrupted by attacks of sickness which are not severe enough to be dignified by the name of a disease, but the frequency of which will, in, alas, too many instances, leave the child inferior in some way.

The better the child is looked after and the more carefully it is fed, the easier will it, as a rule, overcome the so-called children's diseases, which are

really nothing else than diseases which are always present in a community and which in consequence few will escape during childhood; whenever one of these diseases strikes a population where it has not appeared before, it will attack everybody, regardless of age, and it will therefore then appear as an epidemic disease. Few remember that comparatively few years ago smallpox was regarded as a children's disease and was quite as common as measles for instance.

With school-age we get the additional danger of these infectious diseases owing to the close contact into which the large number of children are brought daily, but we find then other disorders as well which are due to unhygienic conditions in the school, which are still far too prevalent, though much is being done in this line in our larger communities; in the rural communities school-buildings and school-hygiene still leave much to be desired as a rule.

When the children go to school they are usually not so carefully guarded any longer, and this also has its dangers.

On the other hand the children of the wealthy who are taught in their own homes for fear of catching diseases and whose recreation consists mainly in walks or rides in the park with a governess, are to be pitied; they may be likened to some rare hot-house flower which looks beautiful but tender and sickly and which can not stand our bracing climate.

Healthy children, or better children in order to be healthy, require the right proportion of both free-

dom and restraint; they have to come in contact with the outer world, rough though it may be at times, in order to develop into real men and women who will be able to stand up in this continuous struggle for the survival of the fittest; but who will at the same time have an understanding as well as a heart for those less fortunately endowed by providence than they were themselves.

Most to be pitied in the writer's opinion are the only children in wealthy families. Lacking the companionship of those of their own age, they are thrown too much into the company of adults, with the consequence that they adopt the opinions of their elders and imitate their ways, with the result that they are nothing more than prematurely grown up little men and women, who in later years will surely feel that they have missed their youth. Moreover, owing to the constant exaggerated care of an over-anxious mother, or by their association with hired menials to whom this duty has been delegated, they are kept away from every danger, so that they will later lack confidence in themselves and will only too often fall by the wayside, because they have not been taught to overcome temptation when they were young.

What more beautiful than to see brothers and sisters romping around in the open air, regardless of the weather, developing health and strength of body and mind in the competition of play; what more pitiful on the other hand than the only child looking on in envy and longing!

CHAPTER XI

THE FEEDING OF CHILDREN

WHEN the child is being weaned, it changes from a lactivorous organism which is living, at least when it gets the food destined for it by nature, namely human milk, on a food which has exactly the right proportions of all its constituents in the shape in which it can be the easiest digested, to the omnivorous organism which man represents, living on material which demands considerable work from the system before it can be digested.

We have to consider now what the demands of the child's body for food will be at this time.

First of all we must have a clear understanding of the fact that there is a vast difference between the demand of a child for food and its consumption of food. As is only too well known to the physician, children at this period of life are very frequently overfed. Few mothers know how much their baby had been receiving at the breast and when she weans it she attributes every crying spell to hunger, and in giving more food she adds to her mistake; thus only can we explain the large number of cases of digestive disturbances at this time.

Whenever possible the physician should superin-

tend the weaning and he should determine by careful weighing, both of the infant and of the food, how much the child is getting and what progress it is making.

What then are the demands of the young child for food?

The answer to this question can not be given off-hand, but must be given separately for each age and weight of the children.

Digestion, assimilation and the demand for food correspond to the relative surface of the body, but there is no material difference in the assimilation of the adult and that of the child, except as far as the fact is concerned that the one is growing and the other is not.

The child lives almost exclusively on fat and carbohydrates, that is sugar and starches, from which it produces the necessary heat; it reserves the protein, the albumen in the food, for growth and it will therefore be able to get along with relatively small amounts of protein in its food, about one-tenth of its daily allowance.

A safe rule to remember is the following:

The proportion of the fats to the carbohydrates should be such a one that the child's food contain six to seven parts of carbohydrates by weight to one part of fat.

As to the salts in the food, some of this is a necessary addition, but the child should not get more than one grain of table-salt per pound of body-

weight daily, as every additional grain of salt has to be gotten rid of and thus creates a demand for more water; an excess of water in its turn will carry away, not only the superfluous common salt, the sodium chloride, but other salts as well which were not in excess in the food and which will thus be lost to the body.

After these general remarks the natural question will be: What shall we give the young children to eat and how shall we give it?

At the time of weaning it is best to adhere to the well-tried five feedings daily at four hour intervals, nothing naturally being given at night; but as soon as possible we should leave out the afternoon meal, the one corresponding to the afternoon tea, and later also the second breakfast, so that the child, when it is two years old, will receive one-quarter each of its daily allowance at breakfast and supper, and one-half at dinner, the heaviest meal coming always in the middle of the day, followed by a nap.

Some children may have to continue on four or five meals a day for some time longer on the physician's advice, but most children will have a much better appetite and will thrive much better on three square meals a day, even at from two to three years of age. We must, however, not attempt to deceive ourselves; we must call everything given to eat and every glass of milk a meal.

The caloric demands of the child, after the second year of life, are twenty-five to thirty calories for each pound of body weight. The food should then

be so composed that of each one hundred calories proteid should furnish ten calories, fat thirty calories, and carbohydrate the remaining sixty calories.

The caloric value and composition of different dishes will be shown on pages 148 and 149.

In what form should we then give the necessary food at this time?

We must, first of all, get away from the old idea which is still too deeply rooted in the minds of the laity as well as of many physicians, that milk, animal milk, is the ideal food for children after the completion of their first year of life. It is a poor enough substitute for mother's milk during infancy. Why then should we wean a child from the mother's breast to give it another food destined for infants, infant cows though they be? Does not the development of the teeth at this time clearly indicate the nature of the food to be given forthwith?

Many an originally healthy set of teeth is spoiled through lack of use at this early age and by the continued feeding with liquid or semi-solid food. The solidity of the food should be determined by the stage of eruption and the number of the teeth.

Broth, which used to be considered one of the mainstays in the bringing up of young children, makes a good recipient for farinaceous food-stuffs, but it should not be given by itself, for it is too voluminous in proportion to its slight nutritive qualities; it is also too rich in salts, containing about one and one-half parts in one hundred parts; its value as

a food is therefore determined by what we cook in it. Strong broth and beef-tea are stimulants and as such have no more place in the dietary of the healthy child than has alcohol.

During the second year of life when milk is still given in considerable quantities, this will furnish most of the proteins, some of which will also be supplied in the cereals. The salts will be provided in the tender young vegetables and in the fruit. Of the vegetables the best for this age are spinach, lettuce, carrots, potatoes, and Spanish chestnuts; of the fruits, apples, pears, oranges and bananas, these latter only cooked either as a vegetable or as fruit. Exceedingly valuable are also the Leguminosæ: dried beans, peas, lentils and soy-beans.

As the young vegetables are given principally for their salts, especially the iron,—a cup of cooked spinach, for instance, contains enough iron to supply the needs of a child for a whole week—we must see to it that the child really receives these; in the ordinary household the water in which the vegetables have been boiled is thrown away, and as this contains most of the salts, the child is thus deprived of a most essential part of its food. This water must therefore be boiled down and added again to the vegetables when they are strained.

For the teeth nothing is better than to give the child dry toast made in the oven (not the soggy kind), zwieback, Holland rusk, crackers and graham wafers.

During the next two years we may give occasionally, but by no means regularly, an egg or some minced meat; we can also allow the coarser vegetables, such as the different kinds of cabbages, cauliflower, parsnips, turnips and asparagus; of the fruits those with pits and the berries with the seeds strained out, except strawberries; the child may now be given bread, ordinary toast and rolls.

After the age of four the child may eat at the family-table, especially as it may now be allowed to chew its meat, and it is safer that it do this under the watchful eye of its parents, as it might, otherwise, acquire the pernicious habit of bolting its food; it may be given all kinds of vegetables and fruits, and the daily allowance of milk should be cut down still further, though this will hardly be necessary, as many children refuse to drink milk at this age.

The child may and should partake of the regular meals of the family. It must know, however, that it can not have of everything that is brought to the table, and it should not be given of this or that of which it may not have a full helping.

We have seen before that the older child should have from twenty-five to thirty calories for each pound of its weight, and that the food should be so chosen that of each one hundred calories furnished to the child ten calories should be given as proteids, thirty as fat and the remaining sixty calories as carbohydrates, that is as sugars and starches.

In the following table are given portions of pre-

pared foods representing one hundred calories each; in it is also shown by what these calories are represented, so that it will be comparatively easy to tell from this what quantities of each article of diet should be given to the child and how one may arrange the daily menu.

The figures in this table are only approximate and they are rounded off for the sake of convenience; they are, however, sufficiently correct for the purpose for which they are intended.

Food	Amount	Proteid	Calories	
			Fat	Carbohydr.
Whole milk	5 oz.	20	50	30
Skim milk	10 oz.	40	10	50
Cream	2 oz.	10	80	10
Buttermilk	10 oz.	40	10	50
Whey	13 oz.	10	10	80
Curds	2 oz.	25	70	5
Skim-milk cheese	1 $\frac{2}{3}$ oz.	75	25	—
Cream cheese	$\frac{3}{4}$ oz.	30	70	—
Butter	$\frac{1}{2}$ oz.	—	100	—
Olive oil	$\frac{1}{2}$ oz.	—	100	—
Egg	1 large	30	70	—
Scrambled eggs	1 $\frac{1}{2}$ oz.	25	75	—
Meat broth	3 pints	30	70	—
Boiled beef	1 $\frac{2}{3}$ oz.	40	60	—
Roast beef or chop.....	1 $\frac{1}{2}$ oz.	65	35	—
Roast pork	$\frac{3}{4}$ oz.	20	80	—
Roast lamb	1 $\frac{2}{3}$ oz.	50	50	—
Roast veal or chicken.....	2 oz.	70	30	—
Boiled chicken	2 oz.	75	25	—
Boiled fish	3 oz.	90	10	—
Salted fish	1 $\frac{1}{3}$ oz.	30	70	—
Smoked fish	1 $\frac{1}{2}$ oz.	50	50	—
Ham	$\frac{2}{3}$ oz.	25	75	—
Lean bacon	$\frac{2}{3}$ oz.	10	90	—
Potato	1 medium	5	15	80
Bread	1 slice	15	5	80
Zwieback	1	10	5	85
Cocoa	3 teaspoonfuls	15	30	55
Cooked cereal	1 cup	10	15	75
Rice boiled in water.....	12 oz.	10	15	75

Food	Amount	Proteid	Fat	Carbohydr.
			Calories	
Rice boiled in milk.....	4 oz.	10	20	70
Farina boiled in water.....	9 oz.	10	20	70
Farina boiled in milk.....	3 oz.	15	20	65
Pea or bean soup.....	$\frac{1}{2}$ cup	30	10	55
Thick pea soup or white beans.	$\frac{1}{4}$ cup	25	20	55
Green peas	$4\frac{1}{2}$ oz.	25	—	75
String beans	9 oz.	20	—	80
Spinach	7 oz.	30	40	30
Cabbage	12 oz.	10	55	35
Purple cabbage	12 oz.	30	10	60
Cauliflower	12 oz.	30	10	60
Brussels sprouts	8 oz.	35	10	55
Carrots	10 oz.	10	5	85
Turnips	8 oz.	10	10	80
Oyster plant	6 oz.	5	5	90
Asparagus	18 oz.	40	5	55
Tomatoes	18 oz.	15	5	80
Cucumber	24 oz.	30	10	60
Radishes	18 oz.	20	10	70
Rhubarb	18 oz.	10	20	70
Chestnuts	$\frac{3}{4}$ oz.	10	10	80
Banana	1 large	5	5	90
Grapes	4 oz.	5	—	95
Cherries	6 oz.	10	—	90
Apple, pear or orange.....	1 large	5	—	95
Dried fruit	4 prunes	5	—	95
Sugar	2 tablespoonfuls	—	—	100

This table shows how important it is that fruits and vegetables make up a large part of the child's diet, and that some of these even contain rather large amounts of proteids.

Cooking changes the food considerably; thus boiling beef reduces its weight by about one-half, fish by one-tenth; roasting meat reduces its weight by about one-quarter.

A sample-diet for a healthy child of eight years would be about as follows:

Breakfast:

Cooked fruit	one-half cup
Cooked cereal	one cup
Bread	two slices
Butter	one-half tablespoonful
Milk or cocoa	one cup

Dinner:

Pea soup	one cup
Chop or fish	one chop, fish piece 3"x 2"x 1"
Rice or macaroni	one cup
Potato	one medium
Green vegetable	one-half cup
Bread	two slices
Butter	one-half tablespoonful
Pudding	one cup

Supper:

Cereal	one cup
Bread	three slices
Butter	one-half tablespoonful
Cooked fruit	one-half cup
Milk	one cup

Coffee, tea and alcohol should not be allowed as beverages for children; they are artificial stimulants and the healthy child does therefore not require these; in sickness it must be left to the physician to prescribe these in carefully regulated doses and for a limited time only, whenever he should consider their administration demanded by the condition of the patient.

Spices also have no place in the dietary of the child with its active life and its normal appetite; they are only liable to injure the tender lining of the stomach.

Candy may be given to the child in small amounts as a reward, but only the best quality; much of the cheap candy which is sold is made up of substitutes for sugar and of artificial flavouring and is actually harmful. Good candy is best given to the child after meals, if it has emptied its plate; when given between meals it is liable to be eaten in too large quantities and then to spoil the appetite and the digestion as well; frequently children are seen by the physician, especially after the holidays and after children's parties, suffering from acute symptoms of poisoning due to large amounts of sweets; some children are very susceptible to sugar.

The bad habit of covering cereals thickly with great quantities of sugar must also be mentioned, as one which may cause harm.

The so-called "*strengthening diet*" which is still so often ordered for pale and weakly children, one with plenty of milk at meals and between meals, and then some more, and rare roast-beef or steak, not to forget eggs in all forms from raw ones up, must not be forgotten here. What is the usual result of this "*strengthening diet*"? The child will most likely suffer from constipation or diarrhœa or both alternately; its complexion will be yellowish, it will have a tendency to skin-troubles; its sleep will be poor; it will develop nervous symptoms, and

if we take its temperature regularly we will find that it has slight fever. In short we will find that this kind of diet is anything but strengthening and all these symptoms will vanish as by a miracle as soon as we regulate the child's diet, reduce the animal food to a minimum and see to it that the diet is composed of the right proportion of all the elements of the food.

Unfortunately we still have to contend with a great amount of prejudice and ignorance in the feeding of children, and mothers will always find that they must strenuously resist the well-meant but meddling interference of relatives and friends; they must be firm, realising that it is the welfare of their own offspring which is at stake.

Individual differences and innate or acquired physical or psychical aversions must be duly considered; any experienced mother or nurse will know that certain children can not be made to partake of certain foods without being made ill by them, and quite frequently we will find the same aversion in some other member of this family. Some foods may actually have the effect of a poison, such as for instance strawberries, or the crustaceans or bivalves.

Geographical as well as racial differences, and local tastes and customs, also demand consideration.

The social conditions of the parents play an important part in the dietary of children, not because it is in any way difficult to provide the food for children at a very reasonable outlay of money, but, on the contrary, because among the well-to-do things

are frequently given because they are expensive and bear a high-sounding name and are therefore considered to be correspondingly good and nourishing.

The healthy child does not require anything but what can be found in the ordinary store and what can be bought by every family; the sick child would very frequently be better off for a simpler and more natural diet, instead of all kinds of patented and proprietary foods of more or less, usually less, enigmatical value. Nor must we forget either that this is the age at which all the organs, those of digestion included, are developing, and that they can be developed only by the exercise of their functions. How can we expect that the gastro-intestinal canal will be in a fit state later on in life if we keep it weak now by feeding predigested foods?

CHAPTER XII

THE CLOTHING OF CHILDREN

THE clothing of the child should always be regulated according to the surrounding temperature, indoors as well as outdoors. It should be such as to prevent any sudden chilling of the body, but on the other hand it should not be so heavy as to interfere with the free movements of the limbs or to keep the child bathed in perspiration; in summer it should be especially light and it should be reduced to the most necessary articles only.

It is a very common mistake in this country, where the houses are usually overheated in winter, to have the child wear heavy clothing indoors as well as for playing outdoors. In summer nothing is better for young children of both sexes than rompers (see Fig. 43) made of gingham or some other light material; they allow of free motion and offer at the same time protection of the body.

Boys from about the end of the second year are put in suits with trousers; girls wear dresses with bloomers which they can and will now frequently wear until they are grown up (see Fig. 44); for romping around and for gymnasium work the skirts can be removed.



FIGURE 43. ROMPERS



FIGURE 44. BLOOMER DRESS

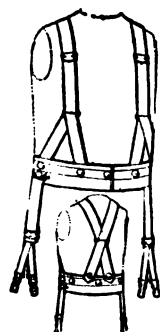


FIGURE 45. SUSPENDER



FIGURE 46. NIGHT DRAWERS

The principal thing to avoid in the clothing is the constriction of the vital organs contained in the chest and the abdomen; all clothing must therefore be hung from the shoulders by means of a waist or special suspenders (see Fig. 45) and it must not be fastened around the middle of the body with constricting bands. Nor should the stockings be held by encircling garters, but the garters should run up along the thigh and be fastened to the waist.

For night-wear at first night-drawers with feet (see Fig. 46) are the most sensible for young children who kick off their bed-clothing during their sleep; for older children pajama suits (see Fig. 47) are to be recommended. This will also fully protect them when they run around in the morning after getting up, which all children love to do before they are dressed.

For outdoor wear in cold weather we should follow the Chinese plan of wearing several layers of light clothing in preference to single and very heavy pieces of outer clothing. In cold weather the child should be made to wear mittens, knitted jacket or sweater and legging drawers, also a cap which protects the ears (see Fig. 48).

High tight collars and fur boas should be shunned; the neck should be exposed to the fresh air and for this reason the sailor-suits and middy-blouses are the best.

Head-wear should only be worn for the protection against sun-rays, against rain and cold; otherwise the head should be bare; this will make the hair

glossy and strong and thick and it will undoubtedly prevent early baldness in young men.

The feet should be shod with strong, broad-toed, sensible leather shoes which should be laced to protect the ankles from strains (see Fig. 49). In summer low shoes and sandals may be permitted. The legs should be covered with stockings. The foolish fashion of sending children out in all kinds of weather with bare legs and thin socks can not be condemned too severely; this is the outcome of a mistaken idea of the so-called hardening process which only really strong children can stand, but which will never make weakly children strong. In summer the legs should also be covered to protect the child against mosquito bites and against slight injuries when playing. If we want to allow our children to go with bare legs in very hot weather, then they can go barefoot or with sandals. In wet weather the feet should be protected by wearing rubbers or in very cold weather and on high snow by arctics over the shoes.

Dame Fashion should have no voice about what children should wear; the clothing should be simple and appropriate, and the child should not be taught to make of itself the slave of costly clothes which interfere with its natural desire for free exercise of the body and the training of all the muscles. In girls we should take a decided stand against the wearing of corsets which will keep the muscles of the back from developing properly, by partially, at least, supplanting them; a light waist without any



FIGURE 47. PAJAMAS



FIGURE 48. WINTER CLOTHING



FIGURE 49. SHOES



FIGURE 50. WAIST FOR YOUNG GIRLS

stays (see Fig. 50) is the only thing which we should allow, and in this manner we will save the future woman many a back-ache and many a day of invalidism. Boys should be given ordinary suspenders as late as possible, because they are liable to make them stoop-shouldered; tight belts should not be allowed.

naturally we will always find it a much harder task to make the child eat things it does not like than to keep it from eating things it should not have. Vegetables especially, which, as we have seen, are of such great importance in the feeding of children, are frequently very difficult to administer to children; sometimes even after the child has eaten them nicely for some time it may, suddenly and without any apparent reason, refuse them; but with firmness and with the necessary tact we will always succeed, provided naturally that the child is not actually ill. The same may be said about medicines, especially our good old standby, castor oil. If the mother approaches the child hesitatingly with the medicine-spoon in her hand, showing by her very expression that she fears and expects that it will refuse to take it, then the child will most likely, and quite naturally, do so; if on the other hand she is quietly firm and persistent the child will soon understand that taking the medicine is the easiest way out of an unpleasant situation. The child will give in as soon as it realises that the will of the mother or nurse is stronger than its own. In very many cases when the mother fails to be able to make the child take something it does not like, the father, if he will take the child by himself alone, will readily succeed.

From the time the child is eighteen months old it should be taught to eat alone and it is then extremely important not only that it eats but how it eats. It should be taught from the very beginning to carry the cup to its mouth with both hands and to drink

without spilling; it should also be taught to eat its pap or its vegetables with a spoon and to use a pusher to get the food into the spoon (see Fig. 52), as this will be done rather slowly at first the food should be served on a hot water plate (see Fig. 51). This may take a few months to accomplish, but the child must acquire table-manners as early as possible, as the lack of these will always be a sign of a neglected bringing up. In teaching the child early how to eat alone we will also give it self-confidence, and a child who has been taught this early will also be able to dress itself early, without aid, and it will thus acquire to a considerable degree that independence which will be necessary for it in later life.

Speech is an accomplishment which the child has to acquire gradually, though it can produce sounds from the very time of its birth; these sounds are the expression of bodily sensations to indicate that it is hungry or thirsty, or that it has pains or is uncomfortable. Soon the child will learn to use its crying as a call for aid when it has one of these uncomfortable feelings and it will also produce sounds as an indication of its well-being and its pleasure and no less its displeasure.

Real speech, which is a combination of the faculty of taking up words through the ear and the reproduction of these with the vocal apparatus by imitation, begins at the end of the first year of life, when the child will be able to repeat a few simple words such as mamma and papa, which are really only reduplications of the words ma and pa; we will

notice that the child will at first usually duplicate the words or syllables of words which it learns to utter. This will soon be followed by the formation of simple short sentences, and later it will learn the use of the important little noun "I" which will indicate the clear understanding of its own personality.

Some young mothers delight to such an extent in the first "baby-talk" of the child that they encourage its continuance by answering it in the same manner; this is a mistake, as it will lengthen considerably the time before the child will know how to talk rightly, and occasionally we will hear children of from four to six years who still use this mode of expression.

Defects of speech, such as halting, stuttering, stammering and the faulty pronunciation of such letters as "s" or "r," should be early attended to, before the faulty habit has become fixed; in older children it will require a great deal of patience and endeavour on the part of specially trained physicians to eradicate such defects which are liable to cause the child a considerable amount of unpleasantness, to say the least.

It is very necessary to teach the child to talk rightly from the very first.

In educating children we must always remember the one principal fact that children are imitative creatures, both in their speech and in their actions, and parents or nurses will often be unpleasantly surprised to hear or see their mannerisms repeated

in an unmeaning but correct way. We must therefore be extremely careful in our own speech and in our behaviour, and if the children are to be left to attendants we must be perfectly sure of the purity of their talk and their morals to save ourselves from such surprises for which we are liable to blame or even punish the child rather than the person really responsible for this.

Egotism is innate in the child and is the outcome of the natural tendency for self-preservation; the child does not bring into the world any knowledge of the difference between mine and thine; it has to be taught this. The thoughtlessness towards animals is also inherited from our ancestors and it must be combated from the very first. Truthfulness is also acquired only by education and experience.

The child is born without fear of anything and it is only through faulty bringing up and through the telling of ghost-stories and such that they are made to fear the dark or that they are afraid of the harmless animals.

The best way to cure a child from self-will, egotism, thoughtlessness and fear is by the good example set them by the adults in their surrounding and even more so by their close contact in play with children of their own age, where the child will learn to subject its own personality to that of others and to regulate thus unwittingly its relations to the outer world.

As the child gets older we so influence its play at

home, when it is alone, as to lead it slowly towards useful occupations and to the use of its hands and the employment of tools. Modern technique has made this quite easy by furnishing all kinds of toys, both for boys and girls, with this idea in view, and we can thus stimulate at a comparatively early age the constructive and inventive faculties of the mind.

One thing we must never forget, in this education of the hands of the child, namely, to preserve its natural ambidexterity; nor should we insist on the use of the right hand in children who are naturally left-handed.

The child has to learn everything through its own experience and the old saying that "the burned child fears the fire" is true only when the child really has been burned and therefore knows why to fear the fire. The young child will quite naturally find it extremely difficult to profit by the experience of its parents or attendants; it is of an investigating state of mind and very receptive to external impressions. It is therefore necessary to let the child gain this experience for itself, without, however, exposing it to any actual danger. Some overcareful parents try to save their offspring from passing through this school of experience and they go to extremes in guarding them against all, even imaginary, dangers, with the final result that the child has to learn most of these things for itself later in life and that it will thereby be under a serious handicap.

The fear of bacteria assumes at the present time



**FIGURE 51. HOT WATER PLATE
FOR YOUNG CHILD**



FIGURE 52. EATING UTENSILS FOR CHILDREN

some ludicrous aspects; we need only refer to the children who are allowed to play exclusively in sterilised sand, who are not permitted to bite into an apple or to pet an animal, and so on. These are the people who will later in life be consumed with an abnormal dread of contamination; they may then suffer from the so-called "phobias" or abnormal fears, which may assume all kinds of forms, such as the constant washing of hands after touching some article, or the fear of travelling in a railroad-train, or eating in a restaurant and many others, which will be very difficult to eradicate and which will cause the individual considerable inconvenience, to say the least.

One word about the playthings given to the young child. These should be of the very simplest and as few as possible. The child itself will regulate this to a large extent. How often can we see at Christmas time its table covered with the most wonderful toys of all kinds and the little one will after a cursory glance at all this splendour return to its old, worn-out, headless doll. The children who have the most toys are the ones who are usually the least satisfied and who will cry for the moon because they expect their fond parents to indulge them in every wish.

The actual teaching of children should be deferred as long as feasible. For the first six or seven years the child's brain will be so much employed in the storing up of the useful knowledge gained by experience that any other teaching would be liable to

overburden this delicate organ. Some parents pride themselves on teaching their little ones to read and write at a very early age; they teach them all kinds of little pieces of poetry and they delight in boasting about the advanced state of the knowledge of their children, but they do not realise that they are really shortening the happiest time of life, that of care-free, early childhood, and that their so-called clever children are on the same mental plane with the trained animals in the circus.

Schooling may begin at seven years of age or better later and the child will then be able to make up in a very few weeks what it has taken its less fortunate mates months to accomplish.

Kindergartens are not good for children; true, they are a great convenience for mothers with large families who have to attend to their own households, but they are also the means of spreading catching diseases, and the time spent in the close schoolroom would be spent to much greater advantage for the child in untrammelled outdoor play.

Ambitious parents should never attempt to drive the child in school nor should they attempt to have it pass through school in the shortest possible time; the healthy child will regulate this itself. Naturally in some children, especially in boys, we must frequently use all our efforts in overcoming their natural aversion to the restraint of the school and to subdue, to some extent at least, their healthy animal spirits.

Some children are very difficult when it comes to

getting them accustomed to school and they do not do as well as their natural abilities would lead us to expect; still these same children may do very well under another teacher who succeeds in getting them interested in their work, and that a child has been a poor scholar does not mean at all that it will also not do well later in life in its chosen profession.

Other children are backward in school because they are handicapped by some unrecognised physical defect. Since the examination of pupils in the schools has been carried out by school-physicians at regular intervals a considerable amount of good has already been accomplished.

How many times do we observe a child who is backward in school because it is deaf in one ear, unbeknown to itself, its parents or its teacher, and who is sitting at one end of the class with its deaf ear toward the schoolroom, and how this same child succeeds in getting to the head of its class as soon as its place in the room is changed to the other side, so that it can now hear everything.

Or the child whose eyes are defective and who does its work well after it is given glasses to correct its vision, doing away at the same time with the headaches from which it had been suffering so often.

Or the child with adenoids and enlarged tonsils which is kept back by these abnormalities, but whose standing in school improves at once after a slight operation which insures free access of air to its

lungs through the natural channels; which improves its hearing at the same time.

Only one point more about schooling. A word about the frequent examinations now required and especially the so-called "regents' examinations" in vogue in the State of New York and perhaps under other names in other states.

The idea of having to pass an examination is frequently sufficient to disturb the minds of otherwise healthy but high-strung children, and they are bound to increase this nervousness to a high degree. An intelligent teacher should be able to judge the standing of a child by its daily work, without resorting to any special tests of knowledge crammed into the child's brain a few days before an examination, which will quite naturally be forgotten again just as quickly.

But why we should have our children subjected, at frequent intervals, to examinations prescribed by a special board which is not in touch with the work done in that particular school, and worked out by political appointees who are not in touch with that particular teacher, is beyond the writer's understanding. Children should be taught for life, not for examinations.

Furthermore, we must not forget that these examinations come at a time in life when the body is in the stage of transition, at the time of puberty when the system, especially in girls, is rearranging itself to entirely new conditions, when the organs for the reproduction of the race are developing their

function, and when the upheaval in the organism is liable to cause more or less of nervous symptoms. Why should we permit our children at this critical time to undergo the further strain of senseless examinations?

Finally, a few words about music-lessons given at the home and the daily practicing they require. Many children are forced to learn some instrument because it is fashionable, though they do not possess any ear for music nor care for it at that time; these children would much better spend the time wasted at the piano or some other instrument outdoors in healthful play. The child who has a natural gift for music will show this early enough, and these are the ones who should be encouraged and aided.

Dancing lessons are good for children, provided they are given in daytime and not, as is too frequently the case now, at night. They develop the graceful movements of the body and are of great educational value in teaching the little men and women manners and courtesy toward each other.

Evening parties for children of school-age are one of the worst features of life at the present time. Children do need a great deal of sleep and until after puberty is completed they should be in bed at eight o'clock at the latest, at least in winter; in hot summer weather and especially during vacation time when they can sleep longer in the morning they may stay up a little later; the trouble is however that most children wake up early in the morning and they should therefore get a good part of their rest

in the forepart of the night. Visiting theatres at night and especially the moving picture shows is also a bad thing for growing children. Nor must we forget that it is equally bad to burden a child with lessons from school to be done at home, which will either rob them of the time for outdoor recreation or will keep them up until late into the evening.

CHAPTER XIV

THE INFECTIOUS AND CONTAGIOUS DISEASES OF CHILDHOOD

THEIR PREVENTION

MINUTE plants or animals,—the former the so-called germs or bacteria, the latter the so-called protozoa,—may enter the body of the child, here to cause diseases either through their growth or through the poisonous substances they produce. These diseases may be transmitted by means of articles of clothing or of food, such as water, milk, raw vegetables and fruits, when we call them infectious diseases, or they may be transmitted from one person who is carrying the disease to another individual who is not immune against this disease and is therefore susceptible, in which case we speak of a contagious disease; it is however important to know that in this latter case the person transmitting the disease must not necessarily be sick himself, but that he may simply harbour these germs in his system, in which case we call him a disease-carrier.

A certain amount of immunity, that is resistance against infection, is brought into the world by the child owing to the fact that its mother has had some

of these diseases at some time or other before its birth and that she thus still carries in her blood certain substances, the so-called antibodies, which make her system an unfavourable soil for those particular germs, of which immunity she imparts a small amount to the unborn child. More of these antibodies are transmitted to the baby after its birth through the milk of its mother, and this explains the fact that infants, especially those at the breast, are very rarely attacked by some of these diseases.

Overcoming an attack of one of these diseases, even a light one, will also confer a certain amount of immunity to the patient, and this explains why most persons suffer from so many of these diseases only once during their lives.

Recently we have also learned that by introducing into the system of a person a small amount of the dead germs causing a particular disease we can stimulate the body to produce some of the antibodies against it and that we can thus confer at least temporary immunity against this disease; this is of great importance at the time of epidemics and when a person expects to be specially exposed to a certain disease.

The most important point in the prevention, or, as it is also called, the prophylaxis of the contagious and infectious diseases is cleanliness, of the child itself as well as of its whole surroundings, and to avoid everything that might be contaminated. Naturally this must not degenerate into a morbid fear of all bacteria, but it is just as well to realise that

we can succeed to a very large extent in preventing these diseases by cleanliness, and we must understand of what this cleanliness consists.

Everything in the child's immediate surrounding must be kept scrupulously clean, and it should therefore be of such a colour as to show even the least vestige of dirt. Carpets, matting and upholstered furniture should be banned from the nursery as dust collectors; the floors may be of hardwood or covered with linoleum, the furniture covered with oilcloth of some light colour or with chintz.

As children, especially the younger ones, spend a large part of their time on the floor, they must be taught as early as possible not to pick up things from the floor to put them into their mouths, nor to eat any food after it has dropped on the floor.

While it is by no means necessary to be after children all the time to make them keep their clothes and hands clean, we should teach them early that the hands should be washed frequently, especially every time before touching food.

Travelling in railroads, streetcars, visits to the stores and public gatherings of all kinds, also the public play-grounds, frequently expose children to infection and should therefore be avoided as much as possible, nor should we allow strangers to touch the children nor to shake their hands, and the child should know this itself.

This cleanliness also includes the child's mouth; it should be taught to keep its teeth clean and to brush them daily, not only on arising and before retiring,

but also after every meal, to remove the little particles of food which might remain. It should also be taken to the dentist, at least once every three months, to have its teeth examined and small cavities filled which could harbour germs.

Children should learn as early as possible to gargle, not only to keep their throats clean but so that they will know how to do this when they have an illness; for the same reason they should also be accustomed to have their tonsils inspected at frequent intervals, at least every time the child is not feeling well, then the physician will not have to fight his little patient when it is urgent that he should examine the tonsils. Systematic washing out of the nose with a mild antiseptic solution should be made a routine measure every morning and evening; we know that the nose is the filter for the inspired air and the germs will therefore lodge here, and they must be removed before they can do any harm; otherwise they will find a convenient place back of the nose between this and the throat, in the so-called third tonsil; this will enlarge from inflammation and then form the so-called adenoids. Since the writer has advised this systematical washing out of the nose he has seen a great many less cases of adenoids than he did before.

An important point in the prophylaxis of infectious diseases is the hardening of the children so that they are not so easily affected by chilling of the body. This hardening process is in reality a form of gymnastics for the blood-vessels of the skin,

so that these contract and dilate at the proper time in order to protect the body. In this we can succeed in two ways, either with air by letting the babies lie naked on a hard mattress and allowing them to kick to their hearts' content and permitting older children to run around in the room in their nighties; or we can do this with cool water, after the warm bath in younger children and by cold sponges every morning in older ones. School-children will not dread the brisk cold winter-weather if they are accustomed to taking a plunge in the bath-tub every morning, the tub having been filled with cold water the night before. Naturally it is not every child which will stand this hardening process equally well; the principal point is that they have a good reaction after it and this can be observed by the healthy glow of the skin when they come out of the plunge; should their skin remain cold and clammy and should they be shivering then we should desist and try other measures first until the blood-vessels in the skin have been properly exercised.

Should one of the children in a family or a house suffer from an infectious or contagious disease, then the other children should be kept away from the patient who must be isolated. It is not permissible to deliberately expose a child to any one of these diseases, and we must remember that the disease may be very severe in the child so exposed even if it should have been very mild in the first case.

In times of epidemics all gatherings, such as churches, play-grounds and children's parties, should

be shunned; the parents have not only the right but it is their duty to keep the children out of school until all danger of infection is past.

The health-laws existing in the different states and communities are very definite and more or less strict; if they are always conscientiously obeyed a great deal of illness, especially in children, can be avoided. Unfortunately many, even among the intelligent people, are still inclined to regard these laws as an infringement of their personal liberty, and they do not seem to realise that these measures are passed for their own protection and benefit. (The sooner the people at large understand this, and the sooner they learn to obey these laws implicitly, instead of selfishly expecting obedience in others only, waiving it in their own cases, just so soon shall we see a lessened incidence of these diseases, thus saving ourselves and our children from a great deal of suffering and perhaps permanent invalidism, if not untimely death.

We should regard the placarding of houses and the strict quarantine in certain of these diseases which we know to be highly contagious, a temporary hardship though this may be, as one of the necessary measures to protect the public health, and as one which confers the greatest good to the largest number of people, and which is, therefore, according to the constitution of our country, not only permissible but desirable, and for the best of humanity. Though medical science and hygiene have made tremendous strides in the prevention of preventable

diseases, of what will all this avail us if we do not learn at the same time to benefit from these advances?

It is a very necessary preventative measure, too, to call in the physician at once in every feverish illness, as he alone is qualified to make a correct diagnosis, though at times it may be quite difficult or perhaps impossible even for him to do so at his first visit.

After a child has recovered from an infectious disease disinfection of the premises, the bed, the clothing, utensils and furniture is generally considered necessary to prevent any further infection in others.

The best preventative would be to make it compulsory to send every case of an infectious and still more of a contagious disease to a properly equipped hospital, as is done in England, for instance, where they have a sufficient number of so-called "fever-hospitals," and to place the rest of the family under strict quarantine at their home until we can be certain that no new cases will develop. In many of our larger cities with their truly admirable municipal and other hospitals this should easily be done, and can be done if the people will only realise how much better it would be to have these patients taken care of in an institution which is built and prepared for the reception of these cases, and where everything which might be needed in an emergency will be at hand, and where specially trained physicians and nurses are in constant attendance. In many

cities however and especially in the smaller communities the so-called quarantine hospitals, or, as they are still called sometimes, "pest-houses," are not such as to make it even advisable to send our children to them in case of illness; and this explains, to a large extent, the aversion many people still have against all such institutions.

SPECIAL PROTECTION AGAINST INFECTIOUS DISEASES

Vaccination

(We know that many of the infectious and contagious diseases attack men or susceptible animals only once in a lifetime, and that passing through the disease, no matter how lightly, will confer protection against reinfection with this particular germ. By experimentation it has been found that we can protect animals against certain bacterial poisons by carefully injecting into them these poisons in small doses, only sufficient to make the animal slightly sick, then slowly increasing the dose until finally the animal is able to withstand many times the dose of the poison which would be absolutely fatal to an animal not so treated.)

In olden times it had been observed that the accidental infection of small wounds in the skin with the contents of smallpox pustules would cause a local eruption, and following this an attack of smallpox, which, however, was usually very light; this method was therefore employed to a large extent

up to the beginning of the last century to protect people against the ravages of smallpox. It was found, however, that in about two out of every one hundred children thus inoculated the disease was not of the expected light form, but ended fatally. Furthermore, these inoculated people were suffering from real smallpox and thus formed a means for the spread of the disease, which in turn was not necessarily light.

(In the year 1798 appeared a paper by the English physician Edward Jenner which attracted widespread attention. In this he proved that the pustules found occasionally on the udders of cows were closely related to human smallpox, and that persons who contracted this cowpox while milking affected cows were immune against smallpox. .

This artificial inoculation with cowpox has been of inestimable benefit to humanity. Before the advent of vaccination smallpox was universal and was considered a disease of children because hardly anybody escaped it during childhood, so that it was regarded to be a special mark of beauty for anybody not to be covered with the pitted scars of the disease. Smallpox never was, nor is it now, a disease of the poor and of those who live in unsanitary surroundings; the wealthy and even the highest in the land suffered and died from it. It is known that during the last years of the eighteenth century 400,000 people died annually from smallpox in Europe alone. During the Franco-Prussian war in 1870 to 1871 the Germans, who were mostly pro-

tected by vaccination, had only 5,000 soldiers sick from smallpox, and these mostly Bavarians among whom vaccination had not been carried out carefully, while of the unvaccinated French soldiers 23,000 died from smallpox; this is the more remarkable when we stop to consider that the wounded of both armies were taken care of side by side in the hospitals. Since the year 1874, in which vaccination was strictly enforced by law, not a single epidemic of smallpox has occurred in Germany, nor has the mortality from this disease exceeded one in each million of inhabitants, and this though in the adjoining countries, such as Russia and France, smallpox has demanded many victims during the same time. In the Dual-Monarchy Austria still has many cases each year, while in Hungary with its strict laws enforcing universal vaccination smallpox is practically unknown.

(The only drawback to vaccination is this, that its effect is not lasting, and that it confers protection for not more than seven years, and that it must, therefore, be repeated before the end of this period.

From its very beginning this remarkable discovery of Jenner has had to encounter the abuse of the ignorant and the fanatics, and this is still so at the present day. The antivaccinationists, bereft of judgment and truthfulness, in their fanaticism, know how to catch the masses by prating about the smearing in of putrid pus, by referring every disease, no matter how remote, to vaccination and by warping trustworthy statistics to suit their own peculiar

theories. They prate about the transmission of diseases through vaccination; of tuberculosis for which they can not bring a single incontrovertible positive case; of syphilis, which may have happened when vaccination was carried on from one person to the other, but which is impossible now when we use animal lymph; of tetanus or lock-jaw, which is impossible when we realise that these germs can not thrive when they are exposed to the air; of septic infections and erysipelas, which may arise when vaccination is done carelessly and without the necessary surgical cleanliness or if the pustule should be scratched with the dirty finger nail or rubbed by the dirty clothes; the vaccine itself does not contain any disease-producing germs and with a little care we can easily avoid accidental infection.

Course of Vaccination

Vaccination is done by making from three to five distinct scratches into the skin which are separated by at least one-half inch and which are one-half inch long (see Fig. 53); they are made on the upper arm over the outside of the fleshy part, but in girls they may be made on the outside of the leg just above the knee; these scratches must be deep enough to go through the outermost layer of the skin, but just short of drawing blood. Into these we rub the glycerinated vaccine prepared from the inoculation of healthy animals, usually calves.

About twenty-four to thirty-six hours later the

sites of the vaccination begin to redden and from now on they show a swelling, which increases up to the fifth day, when the pustules begin to develop; these are completed by the seventh or eighth day (see Fig. 54); the surrounding skin is now red, swollen, itchy and slightly painful. On the eleventh day the pustules begin to dry up (see Fig. 55); scabs will form, which come off at the end of the third week, leaving the characteristic depressed scars (see Fig. 56).

At the height of the process, about the fifth or sixth day, we may observe a slight fever, some loss of both sleep and appetite, and the child may feel somewhat ill.

Complications of Vaccination

Erysipelas and the septic infections are due to the carelessness either of the physician, who did not use the necessary precautions, and who wrongly considered it to consist only in a few slight scratches not deserving of the surgical preparation which he would not dare to omit in an operation; or of the attendant or mother who does not provide the child with irreproachable clothing, nor keep its body clean, and who does not prevent its scratching itself.

Infants suffering from eczema who are usually scratching themselves continually should not be vaccinated until the eczema is entirely healed, because through the scratching the vaccine virus may be spread over the eczematous spots and it may here



FIGURE 53. VACCINATION, FIRST DAY



FIGURE 56. VACCINATION SCAR



FIGURE 54. VACCINATION, EIGHTH DAY



FIGURE 55. VACCINATION, ELEVENTH DAY

cause a secondary generalised vaccination which may look serious for a few days, though under the proper treatment the outlook of it is usually good.

Treatment of Vaccination

The treatment of a normal vaccination consists in the most scrupulous cleanliness and in the prevention of secondary infections. When the inflammation is very pronounced we apply cooling lotions or a mild salve, or an indifferent powder, such as sculpter's clay.

Protective dressings, and especially the so-called vaccination shields, should not be used; they delay the drying up of the pustules considerably, and we find frequently a bad odour on removing these. When these protective dressings are used, we frequently find the glands in the armpit and at the elbow swollen, and this shows that these so-called protective measures not only do not prevent infection but on the contrary rather favour it. The sooner we allow the pustules to dry up the better.

From the fifth day when the pustules appear until the scabs have fallen off we forego the regular tub-bath and allow only sponging in its stead.

It is the writer's firm conviction, which is based upon a careful study of the subject of vaccination and upon the perusal of carefully compiled statistics, the truthfulness of which is beyond question, that if vaccination would be carried out regularly and universally in this country, we would not have a

chance to observe a single case of smallpox, except perhaps where it had been imported from some other country. This would surely be better than having frequent epidemics of this disease and would save everybody a great amount of anxiety as well as a large expenditure of private as well as of public funds.

It is only by the spreading of the gospel of vaccination and by the controversion of the lying propaganda of the antivaccinationists that we can finally eradicate the scourge of smallpox which is a reproach to the name of any civilised country.

Inoculation Against Other Diseases

Tetanus. Lacerated and punctured wounds, especially those on the feet which are exposed to dirt and to the dejecta of animals, but foremost of all those wounds which are caused by the explosion of fireworks and by toy-pistols with which we still allow our children to celebrate the birthday of our nation, form a favourable soil for the germ of lockjaw. Once the disease has put in appearance the use of the antitoxin will no longer do any good; (but as a preventative measure it must be administered at once in order to prevent this dreadful and almost always fatal disease, and a physician must therefore be called at once to inspect any one of these wounds.)

Hydrophobia. A mistaken sense of kindness still allows of many unmuzzled stray dogs being allowed

to run around on our streets; at any time, especially in summer, (one of these animals may develop hydrophobia or rabies, and in its blind rage bite other animals and human beings, to whom the disease is thus transmitted.)

The French scientist Pasteur found that it was possible to prevent the outbreak of this dreadful disease in those who had been bitten by injecting an antidote prepared from the brain of animals who had the disease, and that this was possible because about six weeks or even more will elapse between the time a person is bitten and before the symptoms of the disease will develop.)

In order to determine if an animal which has bitten a person was suffering from rabies it is necessary to keep the suspected animal under observation to see if it will develop the disease, or where it had to be killed to send the head of the animal to an institution for examination; this will prevent the treatment being given unnecessarily and will save the patient and his family considerable anxiety.

Typhoid Fever. (As long as we permit our water-supply to be polluted by sewerage and not have it everywhere above suspicion and reproach, especially in summer-resorts and in rural communities, so long will the children be exposed to this unnecessary disease; the more so, as typhoid fever is primarily a disease of young people. Of late years a great deal of work has been done, especially by the members of the U. S. Army Medical Corps and the U. S. Marine Hospital Service, along the lines of inocu-

lation against typhoid fever with splendid results.

The immunity thus conferred is supposed to last, at least at present, for not less than three years. In times of epidemics and before children are allowed to leave home for a visit or a sojourn it is therefore advisable to have them immunized against this disease. (The immunization consists in three injections of vaccine at intervals of from eight to ten days; only about two out of every one hundred cases so injected show any symptoms in a temporary rise of the temperature.

(It now seems as if the best method to protect a person against typhoid fever was to inject the anti-typhoid vaccine, once in infancy, once in childhood, once in youth and once in adult life, though the time which has elapsed since the introduction of this preventive treatment is still too short to form any clear judgment about the exact intervals in which it should be administered. \

Diphtheria. Whenever a child in a family is taken ill with diphtheria all the other children in this family, as well as all those other children who had been exposed to the disease, should at once be given small, so-called immunizing, doses of anti-toxin. These will confer at least a certain amount of immunity for the term of three or four weeks. We have also of late learned a method of determining which children are in need of artificial immunization and which possess sufficient natural resistance against the disease.

Whooping Cough. Of late a vaccine has been

recommended for the prevention of whooping cough; though this has as yet not been proven conclusively to be able to prevent an attack of this disease in all cases, it should be administered at least in delicate children who have been exposed, the more so as it has been shown to be entirely harmless.

THEIR RECOGNITION

Scarlet Fever

Scarlatina is one of the exanthematous infectious diseases; that means an exanthema, a rash, is part of its symptoms.) Its cause, which is undoubtedly bacterial in nature, is not yet known. It is a contagious disease and as such it follows the roads of human intercommunication.) The yet unknown parasite may live outside the human body, at least for a little while, and thus the disease may be transmitted through articles which have been used by a patient or by healthy people who have been around patients; some cases of the disease may be so light, perhaps nothing more than a slight sore-throat, as never to be recognised as scarlet fever, and these cases are apt to lead to a large number of infections. Milk may also, under certain conditions, and when it is not boiled before consumption, transmit the infection, and a considerable number of epidemics has been traced to this important article of diet.

Transmission from one child to another is the rule, especially because a patient immediately before the

stage of the eruption of the rash is extremely infectious.

The stage of incubation, that is from the time the germ is taken into the system until the first symptoms of the disease appear, can be anywhere from twenty-four hours to seven days.)

Prodromata, that is preliminary symptoms, are rarely observed. Usually the child will go to school in its usual good health, at least to all appearances, and it will be sent home from there on account of vomiting and general malaise; when the physician is called he can often make a diagnosis of scarlatina at his first visit.

{ Nausea, headache, profound exhaustion and high fever, around 104 degrees Fahrenheit, are also among the first symptoms; in older children these are as a rule accompanied by chills; younger children may have convulsions. }

From twelve to twenty-four hours after these initial symptoms sore throat will set in, and inspection at this time will reveal a deep redness of the soft palate, which is usually sharply circumscribed towards the hard palate; the tonsils are red and swollen; often they are already covered with a yellowish coat. The tongue is heavily coated and white on its edges; only later will it look like a strawberry. At this first stage the danger of regarding the case as one of sore throat or tonsillitis is very great, and as the patient may transmit the disease most readily at this time other children in the family may be infected if the physician is not called in at once to

make the correct diagnosis. Every case of sore throat with severe general symptoms, setting in suddenly, should be regarded as suspicious of being scarlet fever.

The typical scarlet rash appears usually at the end of the first or the beginning of the second day of the sore throat. It consists of minute red specks in large numbers which are separated at first by normal skin, then their number and the intensity of their colour may increase to such an extent that finally the skin appears from a distance to be painted a scarlet red; on closer inspection we will perceive that the spots are all separated and do not run together.

The rash usually shows up first on the trunk,—on the chest, the back and the neck,—at times first on parts subjected to pressure, as on the buttocks and the shoulders, or where skin touches skin, as on the inside of the upper arms or thighs. The face remains relatively free, and the pallor of the region around the mouth, which forms a sharp contrast to the feverish redness of the cheeks and lips, is very characteristic. The cheeks, the ridge of the nose and the temples may show a little of the rash.

The eruption will have reached its highest intensity between the third and the fifth day; it will remain at its height for about one day and will then begin to fade. By the end of the first or the beginning of the second week of the illness the rash will have disappeared and the skin will sooner or later

begin to peel off in large pieces, especially on the hands and feet.

Under the name scarlatina we comprise the light cases of true scarlet fever; it is not a disease by itself, as is the popular belief, and we must always remember that from these cases the most severe cases of scarlatina may arise.

Measles

Measles is another one of the infectious exanthemata, the cause of which we do not yet know. It is infectious for every age and it is a disease of childhood only because almost everybody contracts the disease early in life and thus acquires a lasting immunity, although some individuals may have the disease more than once; infants are rarely infected before the second half-year of life,) especially when at the breast.

The disease is transmitted by contagion and also through healthy persons and articles, such as clothing, bedclothing, etc.; the poison does not however live long on such articles and the usual form of transmission is through the congregation of susceptible individuals in schools, kindergartens and asylums.

The stage of incubation is about eleven days and passes usually without symptoms, though in a few rare cases the child may appear tired, less inclined to play, have light catarrhal symptoms and a slight rise of temperature in the evening, which will at

once attract the attention of the careful mother.

The first stage of the disease, the so-called prodromal or catarrhal stage, sets in with a running nose, inflamed eyelids and a harsh cough. Nose-bleed is frequent, especially in smaller children; the children fear the light and the cough is of a peculiar, rough, metallic quality, of a troublesome nature, with more or less hoarseness, nor does it show any inclination to get loose. The child now feels really sick, it cries easily, is cross, languid, has no appetite, and the fever is up to 102 or more degrees Fahrenheit in the evening. About twenty-four hours before the rash appears the physician is able to find, in most cases, peculiar white spots in the mouth of the patient which are quite characteristic. The catarrhal stage lasts altogether about three days.

The rash begins usually on the face, around the eyes and mouth, whence it spreads to the trunk and lastly to the extremities. At first it is composed of minute light-red specks which will however soon run together and assume a dark-red or brownish colour, and the patches will assume all kinds of phantastic shapes of varying sizes, between which the normal skin is to be seen. The skin feels rough.

In comparing the rashes of scarlet fever and that of measles, the former looks as if it had been painted on with the finest of camel's-hair brushes, the latter with an ordinary painter's brush.

The course of the disease runs parallel to the development of the rash. The fever rises to and stays at 104 degrees Fahrenheit or more.

The child feels quite ill, it is listless, complains of severe headache and pains in its limbs; at night it may often be delirious. The symptoms which had been observed in the prodromal stage are all increased in intensity; the nose runs profusely, the discharge causing sores on the nostrils and upper lip; the inflammation of the eyes and the fear of light are more pronounced; the child is quite hoarse and croupy, and it suffers much from the continuous dry and painful cough.

The tongue is covered with a heavy coat which comes off in pieces; in the mouth one can see a redness in spots similar to those on the skin.

Usually five or six days after the appearance of the rash the fever comes down suddenly, so as to be normal in from twelve to thirty-six hours; at the same time all the symptoms improve and the child begins to play.

German Measles

Rubeola or German measles is a very benign exanthematous disease, the course of which is usually very light, so light in fact that it is frequently overlooked or attributed to an indiscretion in the diet.

The disease is very contagious, but the disposition towards it seems to be only slight; children under two years of age and adults hardly ever catch it.

The incubation is rather long, seventeen to twenty-one or more days. The prodromata are slight; the day before the appearance of the rash the child may feel chilly and tired and it may sleep badly.

The rash begins as a rule in the face as light pink specks, the size of the head of an ordinary pin; it spreads in fits and starts, so that one part of the body will be affected while on another it has already faded; sometimes it runs together into larger spots but not as much as does measles; still, in some cases it may look very much like this latter disease; on other parts of the body again the spots may remain separated as in scarlatina. The rash will have disappeared entirely in from two to five days. Slight catarrh may accompany the rash and the temperature will be found to be a little above the normal. The disease runs its course in at most five days.

Chickenpox

Varicella is another infectious and very contagious exanthema; it is almost always a disease of childhood and the human race is very prone to it. It spreads through the air and the contagion takes hold very readily; one attack confers usually immunity for life.

The incubation is long, not less than two weeks and sometimes more than three weeks. The rash appears usually without any prodromata; first small pink spots show on the head and the face; some of these grow to the size of a lentil and form nodules, and then larger or smaller round blisters with clear contents. The eruption will then show up on other parts of the body in irregular distribution, leaving large parts of the skin free; not all of the spots de-

velop into blisters, and we can observe, at one and the same time, all stages of the eruption on a small area of skin.

The blisters lift up the uppermost layer of the skin; they have small compartments which are full of a yellowish liquid which at first is clear and later turbid. On their top they have a small indentation. They dry up into a brown crust which comes off without leaving a scar, except where the skin has been infected by scratching.

The whole process from the appearance of a spot to the formation of the crust takes three days, but as the eruption comes in successive crops the disease may last two or three weeks. The fever is moderate and lasts three or more days. A few spots are usually found in the mouth and on the female genitals.

In some cases the eruption is very intense; every spot develops into a blister, and these are so closely together on the red and swollen skin that the case might easily be mistaken for one of smallpox by the laity, for whom the differentiation between these two diseases is by no means easy and who should therefore always call the physician for this purpose.

Diphtheria

Diphtheria is caused by the Klebs-Loeffler bacillus; this may at times be found in healthy persons who are to all appearances well, the so-called diphtheria carriers, but who may and do transmit the dis-

ease to other, susceptible, people. The bacteria when growing in infected people produce a poison which permeates into the body of the host and there acts in two ways, or better expressed it is composed of two poisonous substances, of which one seriously damages the blood-vessels, causes local inflammation and the poisoning of the whole system; the other one acts chiefly upon the nerves. The amount of this latter poison varies considerably in different epidemics.

The clinical picture of diphtheria must be regarded from two standpoints, namely, the local symptoms of the disease produced by the germs, and the poisoning of the body in general by the poisons produced by the germs in their growth.

(The bacteria usually gain entrance into the body through the nose, throat, and the upper air passages, though they may enter the body at other sites; the tonsils are most frequently the first seat of the attack.)

The inside of the mouth is red, the palate is also red though often in stripes; upon one or both of the red and swollen tonsils we see a larger or smaller spot of a dirty greyish-yellow colour which upon closer investigation proves to be not in, but upon the tonsil. The local symptoms at this stage will frequently still be quite slight, and the child may even not complain of a sore throat.

The sudden onset of the general symptoms, however, will tell us that the child is quite ill. It complains of severe headache and of being sick in its

stomach, vomiting is usually present, and right from the very first it will be weak and exhausted. Towards the end of the first or the beginning of the second day it will complain of its throat.

During the next few days the membranes, for as such are the spots on the tonsils to be considered, spread over the tonsils and the soft palate; they assume a lighter colour and a silky sheen and they are not abruptly bordered toward their surrounding. The glands in the neck and under the jaws will now begin to swell. In cases which have not had the benefit of the treatment with antitoxin the formation of the membranes will continue, until finally after five or six days the whole throat will be lined with membranes, and the disease will also go up into the nose. The child is now very sick, it is apathetic and has no appetite, it is pale, wasted, and its loss of weight is considerable.

In uncomplicated cases the process in the throat comes at last to a standstill, though it may progress in the nose for a few days more. The membranes are expelled in shreds of varying sizes or they may thin out gradually; the fever which at first was fairly high comes down gradually and the temperature will be normal about the middle of the second week. The height of the fever does not correspond to, nor does it give any indication of, the severity of the disease in diphtheria.

In infants the disease starts most frequently in one or both nostrils and it may remain confined to the nose altogether.

From the foregoing sketch of diphtheria it will be seen how important it is to examine a child's throat every time it complains of being ill so that this dreadful disease is not overlooked in its beginning, when it can still be cut short, or at least its dangers lessened by the timely administration of antitoxin.

Antitoxin. (Through the wonderful work of v. Behring, a German scientist, and Roux, a Frenchman, we now possess a powerful specific antidote to the poison produced by the diphtheria bacillus in "antitoxin.")

When the system is being poisoned with a bacterial poison, a toxin, it begins at once to prepare a substance, the antitoxin, which can unite with the poison, and thus form a new substance which is no longer poisonous; the antitoxin thus neutralises the toxin in a similar manner that an alkali will neutralise an acid by forming a salt which has an entirely different chemical action.

In cases which recover of the disease the antidote has been produced in more than sufficient quantities to neutralise all the poison, and after the disease has been overcome we will still find considerable amounts of this antitoxin circulating in the blood; it is this surplus of antitoxin which will give the body some immunity, so that it can neutralise a certain amount of toxin without showing any signs of illness, and also make the body an unfavourable soil for the growth of the bacillus.

In preparing the antitoxin we make use of these

facts by gradually injecting increasing doses of the poison into animals, usually healthy horses which are well bred and fully grown; with this we continue until their blood carries enough antitoxin to neutralise many times the fatal dose of toxin. Some of the blood of the animal is then drawn; it is tested as to its antitoxic properties, and preserved for use.

The injection of this preserved antitoxin is now our principal treatment in cases of diphtheria. It is in reality a preventive measure in that it saves the system of the patient from further poisoning, thus giving the body a chance to repair the damage already done. \

{ It will, therefore, be readily understood that it should be used as early as possible, and it is now the practice among modern, up-to-date, scientific physicians to inject antitoxin in sufficiently large doses, even in suspicious cases, when they are first called to see a patient. Far better to give an injection of antitoxin once, when it was not required, than to wait until the most favourable time for its effect had passed. } Statistics of hundreds of thousands of cases show that only when used during the first twenty-four hours after the invasion by the bacteria will the antitoxin exert its full benefit. The injection of the antitoxin can be done in a few seconds without much pain and its beneficial effect is wonderful while the dangers from the injection are very small.

Not to give antitoxin is, in the writer's opinion,

criminal neglect. Physicians who are still refraining from using this most beneficial remedy,—one of the few true specifics which we possess—or who still are waiting for a report from the bacteriologist, which means a delay of twenty-four hours or more before administering it, or those who still make a diagnosis of “membranous croup,” which is always diphtheria, are filling the grave-yards with the untimely victims of their ignorance and conceit, when they could have saved many a one of their little patients by the timely administration of one of the greatest discoveries ever given to mankind for the fight against a dreadful disease.

For parents to deny their child this remedy on account of some foolish notion or some preconceived ideas is, to say the least, inhumane.

Whooping cough

Pertussis or whooping cough is an infectious disease, the cause of which has been found recently. It is epidemic and starts usually from schools, orphan asylums, etc., and it is also frequently spread from summer resorts frequented by children. It is a very common disease which in the cities few children escape. It is transmitted from man to man, as the germ does not live long outside of the body.

The disease begins with a catarrhal stage, during which it is impossible to make a correct diagnosis, except in times of an epidemic, because it is not at all characteristic. The child seems to suffer from

an inflammation of the windpipe or the bronchial tubes, with sometimes slight fever. This lasts for about two weeks and then the child begins to develop the typical attacks of coughing which show that it has entered the second, spasmodic, stage.)

In one of these attacks the child will have a severe cough without intermission for about thirty seconds or more, so that it gets blue in the face from lack of air; the attack is accompanied by the expectoration of copious sputum and it ends frequently with vomiting. As children under seven years of age hardly ever expectorate except in this disease this is frequently an aid in the diagnosis. Between the attacks the child may be to all appearances entirely well and it has no fever.

The number of these attacks in twenty-four hours determines the severity of the disease, as frequent attacks may weaken the child considerably, and as the frequent vomiting may seriously interfere with its nutrition.

The face of the child will soon be more or less bloated, from the congestion of blood during the attacks of coughing, and in the eyes we may observe bleeding; in children with teeth we frequently find a sore under the tongue from chafing during the cough.

The number of the attacks may vary considerably, and it may reach fifty or even more in twenty-four hours; their number increases rapidly in the spasmodic stage and reaches its maximum in from ten to fourteen days; they remain at their height for

from four to six weeks, and they then diminish slowly until finally nothing is left but a loose cough which will last for some time longer.

Mumps

The inflammation of the salivary gland in front and under each ear is caused by an unknown germ; it is contagious, and appears in epidemics;

After a stage of incubation, lasting from eighteen to twenty-two days, the child will feel sick for from one to three days, without showing any characteristic signs. Then the gland described above, the parotid gland, begins to swell, and it will now be quite easy to recognise the nature of the disease by the typical appearance of the face. The swollen parts feel doughy and the skin over them is tense and shiny though rarely reddened. This swelling and the irregular fever which accompanies it last for from three to seven days. The child suffers only from the local pain and the inconvenience of the mechanical interference with the opening of the mouth.

Usually the course of the infection runs smoothly; the child frequently does not feel even sick enough to stay in bed, and the disease will not leave behind it any disturbances.

Acute Articular Rheumatism

Inflammatory rheumatism is rare in the first half of childhood; it is always a serious disease, no mat-

ter how light it may appear to be, owing to its liability to recurrences; any person who has once had an attack is almost sure of having one or more at some time or other during life; nor are we able to foretell at which one of these the most dreaded and dangerous complication of this infection, inflammation inside the heart, will develop.

Quite frequently we have as a prodrome an attack of tonsillitis or only the indefinite symptoms of general languor and dragging pains in the joints; then the temperature rises suddenly to 104 degrees Fahrenheit or higher, and at the same time the child complains of severe pain in one or more joints, which we find swollen at examination; the first joints to be affected are usually the feet or knees; the disease rapidly involves other joints in quick succession, and when new joints are attacked the inflammation in those previously involved recedes as a rule. In severe attacks one and the same joint may be involved repeatedly. The attacks in an individual joint will usually last only a few hours. The temperature is generally irregular and the attack upon a new joint is often accompanied by a rise in the fever.

The child suffers a great deal from the pain and its countenance is distressed, the tongue is coated, the bowels constipated, the thirst is severe and tormenting, the child has no appetite and suffers from insomnia. The pallor of the skin is most marked.

In uncomplicated cases and under proper treatment improvement will usually set in by the end of

the first week, but great precautions have to be employed to prevent relapses.

Light attacks of this disease may be observed by no means infrequently. These cases, being unaccompanied by fever or any general symptoms, and manifesting only vague pains in the body, are usually not recognised and pass by the name of "growing pains"; but their true nature should not be forgotten and the physician should always be consulted.

One form of the rheumatic infection which is generally not recognised as such and which is really more frequent in childhood after the fourth year of life than the form affecting the joints is St. Vitus' dance or chorea minor.

Sometimes the child may have prodromata, it is cross and out-of-sorts, complains of headache, has pains and weakness in the limbs, it tires easily. In most cases, however, the disease starts suddenly with peculiar movements of groups of muscles, mostly in the face, neck and upper extremities, which closely imitate co-ordinated motions and which appear to be voluntary though they are entirely involuntary.

The child twists its shoulders in a peculiar manner, like a Frenchman expressing doubt; it points its lips as for whistling; it puts out its tongue and pulls its mouth to one side; it grins, grinds its teeth, frowns, etc.; the movements in the hands and arms are observed especially in occupations demanding a considerable amount of co-ordination, like sewing or writing; here we observe sudden,

jerky motions which interfere with these functions; the disease may also make it impossible for the child to keep its muscles in a particular position for any length of time; it will drop a thing it holds in its hand without any apparent reason; it cannot sit still in school and fidgets around in its seat and twists its body in all directions. All these motions seem to be voluntary, and for some time they may be considered as bad habits and naughtiness; the child is consequently reproved or punished, and this as well as the teasing of its school-mates makes the condition worse.

The speech will also be affected, the child will pause in the wrong place, its speech will be low with a wrong intonation, explosive and at times with a mixing of letters.

When the lower limbs are affected the child will step with one foot upon the other, stand on its toes, and finally standing and walking may be impossible.

In light cases the sleep will not be interfered with and the motions will then cease; in severe cases the motions will no longer look voluntary but they will be convulsive; the child throws itself around in bed, hitting out with hands and feet, and the bed has to be padded to prevent injuries.

Epidemic Cerebrospinal Meningitis

Brain fever is an infectious disease of childhood, inasmuch as ninety out of every one hundred cases occur in children, and of these twenty-five in infants.

The disease is of an epidemic nature and it is caused by a known germ which is sometimes found in the nose of healthy persons; its virulence for the human race is not very great and it seems to require a special disposition in order to produce the disease; this explains the comparative rarity of the disease.

After a few indefinite prodromal symptoms, or sometimes without these, the child is suddenly taken very ill with high fever, severe headache, great restlessness interrupted by cries from pain, vomiting, and within twenty-four hours the most characteristic symptom, rigidity of the neck; the head is drawn back into the pillow, the spine is arched forward and is stiff; every attempt to move the head is very painful and therefore strongly resisted. All the nerves are in a condition of extreme irritability; the lightest touch may be resisted as unpleasant or even cause pain, likewise strong light or a loud noise, and the child is worried every time somebody approaches the bed. The severe pain greatly interferes with the patient's rest. The colour of the skin changes rapidly and the lightest touch may cause a persistent redness as from a blow. Vomiting is always a prominent sign; it is of nervous origin and very refractory to treatment. Diarrhoea is frequent and severe. The appetite is entirely absent. The duration of the disease is usually from four to six weeks. In infants we observe often rapid cases which end fatally in three or four days.

This disease is always a very grave one and only

after the acute symptoms will have subsided can we form a judgment of the damage really done.

Infantile Paralysis

This disease has only quite recently been properly classed among the acute epidemic infections of childhood, and the germ causing it, which is perhaps the smallest known so far, has been found lately by Professor Flexner at the Rockefeller Institute.

The disease has been known for some years but of late years it has appeared in an epidemic form in this and other countries; it seems also to be getting more frequent, but by no means so much as to call for the almost hysterical excitement which prevails as soon as the finding of one case is announced in a locality.

It begins with high fever which usually lasts for from one to three days; constipation, restlessness, which may be increased to convulsions, cloudiness of the mind with sleepiness are the principal symptoms; older children complain of headache and pains in the limbs.

After the disappearance of these acute symptoms, from which the physician is only in rare instances able to make a correct diagnosis, more or less extended paralyses in one or more parts of the body will be found to exist. This paralysis is at its height immediately after the acute symptoms, and it will frequently recede to a greater or lesser extent in the

course of a few days, weeks or months. Treatment of the paralysed parts should be begun not earlier than three weeks after the cessation of the acute phenomena, and should be persisted in for many months before the hope for ultimate restoration of the function can be relinquished.

Tuberculosis

The infection with the tubercle bacillus is the most frequent one to which the human race is prone, but luckily a child will not suffer from the disease tuberculosis, in one of its many forms, every time it takes these germs into its system.

(In infants and small children the infection may take one of two roads, either through the respiratory tract, by inhaling infected material, as dust or in droplets, or through the digestive tract, by swallowing infected material.) It is by no means necessary that the disease should start at the site of the entrance of the germs into the body, nor is it necessary that the entrance of the germs should cause at once any definite symptoms or any well-defined disease. In infants the infection with the tubercle bacillus seems to be almost always fatal, but in older children the bacilli may either die or they may be stored up in some part of the body, perhaps in some gland, to stay there without doing any damage for the rest of the child's life, or it may come out of its hiding-place, owing to some cause, and then start its ravages.

The most frequent types of tubercular disease in children are affections of the glands in the neck and inside the chest, meningitis, peritonitis and disease of the bones and the joints, while the infection of the lungs, which is the usual type in adults, is perhaps less prominent, though by no means rare.

That tuberculosis is a curable disease is proven by the fact that after the second year of life most children show by special tests that they have been harbouring, or are still harbouring, the germ in their system.

Children of certain types are more apt to suffer from tubercular diseases than others, namely, those of the so-called torpid type and those of the erethic type. The former are the children who seem to be well nourished; they are stout, but on close examination it will be found that they are really waterlogged, that their muscles are poorly developed, their fat and skin flabby, they are pale and anemic. The latter are the slender children with pale skin and a beautiful complexion, who change their colour very rapidly, and in whom the slightest injury is liable to leave long-persisting red blotches in the skin; many of these children have long silky eyelashes and hair, and they have considerable hairiness between the shoulder blades; they are usually very bright, are nervous and very susceptible to climatic changes. It is obvious that proper treatment and especially hygienic measures will be able to ward off the impending danger in many of these cases.

THEIR COMPLICATIONS

The contagious and infectious diseases described in the foregoing pages menace the child's life and health, not only by the poison formed by the bacteria causing these diseases, but also render the child susceptible to accidental infections, or cause such changes in some or several of its vital organs as may still further add to these dangers, so that even the most experienced physician when approaching the bedside of a child sick with one of the infectious diseases, no matter how light the attack may appear to be in the beginning, can never foretell if the course of the disease will be an uncomplicated one, or if one of the dreaded complications may not set in at any time during the course of the illness, or after it has seemingly run its full course.

Some of these infectious diseases are more apt to be accompanied by complications than others. Thus, for instance, scarlatina and diphtheria are the two diseases most to be dreaded for this reason, while chickenpox and German measles are only rarely aggravated in this way.

Again, it may also happen that two infectious diseases attack the child simultaneously, and this may add considerably to the danger for the little patient's life, as for instance if he were to suffer from both scarlatina and diphtheria at one time or in quick succession.

Some of the complications are preventable, others are not. When speaking about the prevention of

these diseases we have shown that the state of health of the child at the time it takes the infection into its system is of the utmost importance as to the ultimate outcome, and we know that for some of these diseases the social condition of the parents, which determines to a large extent the hygienic surroundings of the patient, plays an important rôle; for instance, measles and whooping cough are comparatively innocent diseases in the houses of the well-to-do, while in the slums they will frequently assume a most pernicious type, and this for the reason that the dreaded pneumonia which is the most frequent complication in these two diseases is not part of the infection itself, but is due to the additional and accidental infection with grippe, which is very difficult to prevent, not only in the crowded tenements but also in hospital wards, no matter how sanitary they may be. Tuberculosis of the lungs which also frequently follows both these diseases is, naturally, oftener found in the quarters of the poor and where the children are not watched and tended with the tender care they require.

We will now proceed to describe the most frequent complications in infectious diseases, so that the mother will know what she may have to expect, that she will always carry out the physician's orders to the very last letter, and that she may understand why some of these orders were given.

In diphtheria we can observe almost in every case symptoms from the throat due to the original infection. These may be so severe as to occlude the

air passages almost entirely and to necessitate the making of an artificial passage for the air, either by inserting a special tube into the throat, intubation, or by opening the throat from outside with the knife and placing a tube through the wound, tracheotomy.

In scarlatina the inflammation of the throat, which is here also in most cases a part of the original infection, may be complicated by an accidental infection with the germs of blood-poisoning, which may produce the most dangerous conditions. In both diseases the glands under the jaws and in the neck will be swollen from this infection and they will form big masses which may lead to the formation of abscesses later on.

The bacteria in scarlatina, the accidental gripe infection in measles and the diphtheria bacilli in the nasal type of this disease, may at any time ascend into the middle ear through the passage from the back of the mouth into the ear, the so-called Eustachian tube, there to cause severe inflammations which may eventually destroy the hearing of one or even both ears.

The heart is sure to be affected by any infectious disease, but the poison produced by the diphtheria bacillus has a predilection for this organ and will leave it in such a condition that a slight exertion, even after the disease itself has been successfully overcome, may lead to permanent damage of this important organ if not to its sudden failure; for this reason the careful physician will insist upon

the little patient being kept on its back for some time during convalescence. In septic cases of scarlatina the heart will also suffer severely oftentimes, and in inflammatory rheumatism involvement of the heart is notoriously frequent and much to be dreaded because it causes permanent invalidism in so many cases.

The kidneys are most frequently damaged by the poison of scarlet fever, but measles, diphtheria and even chickenpox may leave these organs in an impaired condition which may result in permanent trouble; for this reason the diet during the convalescence from these diseases has to be carefully watched; the patient must stay in bed for some time after the disappearance of the symptoms of the disease and the urine must be examined by the physician at frequent intervals; in scarlatina daily, for some time.

The appetite is often very poor after some of these diseases, especially after diphtheria and also after scarlatina, and it is at times extremely difficult to feed these children with a diet which is nourishing and at the same time suitable.

The genital organs may be affected by a swelling and pain in mumps, though this will rarely leave any permanent damage in these organs.

Regulation of the bowels is one of the most difficult, and at the same time one of the most important, tasks during and after an infectious disease.

After diphtheria we may observe paralyses of the muscles for swallowing or of the eyes and also

of other muscles; these require long-continued careful treatment.

In scarlet fever we may observe an inflammation of the joints, which adds greatly to the suffering of the patient.

These are some of the complications which we see most frequently and for which we should always be on the lookout; many more could be mentioned, but we will leave their explanation to the physician rather than to create any unnecessary fear in the minds of the laity.)

THEIR CARE

The Sickroom. Whenever this is possible, the choice of the room for the patient should be left to the physician and the nurse. All considerations other than the welfare of the patient should be regarded as secondary, even if the rest of the family should have to suffer some temporary inconvenience. The room should be chosen as far away from the quarters of the family as possible but near a bathroom.

The largest and airiest room in the house is just good enough; where the circumstances permit of this, two adjoining rooms should be set apart, so that indirect ventilation can be carried on, and when the patient is convalescing he can occupy one room in daytime, the other at night.

All carpets, curtains, hangings, pictures and upholstered furniture should be removed from the

room, and only such pieces of furniture should remain in it which can be washed easily, or which may be destroyed without any great pecuniary loss.

The hallway leading to the sickroom or the door of the room itself may be protected by a sheet kept moist with some antiseptic solution; this may not help very materially to prevent the spread of the infection, but it will at least serve as a reminder for the rest of the family to keep out of this room.

The Bed. The best bed in which to take care of any sick person is a so-called hospital-bed, a high, single, white enamelled iron bed, best with a back-rest which can easily be elevated by turning a crank (see Fig. 57). The bed should stand free on all sides, so as to make the patient readily accessible for all ministrations without its being necessary to move or otherwise disturb him. It should be placed in one corner of the room so as to keep the patient out of the path of the direct air-currents between the door and the open window. In measles the bed should be protected by a screen against bright light, because the eyes are rather sensitive in this disease; but it is by no means necessary nor wise to darken the room entirely, as is still done quite frequently.

The mattress should be hard and must be protected by a piece of rubber-sheet, the pillow also should be hard and likewise protected, though it is best to burn this after the patient has recovered, since it is usually soiled by the discharges from the nose and mouth; in some diseases, as for instance scarlet fever and diphtheria, the mattress is also

best burned when the patient is past the danger of infecting anybody.

The bed-covering should be light and warm, and only such blankets as can be washed and disinfected must be used. Featherbeds or quilts should therefore not be used.

The undersheet on the bed should be pinned down at all four corners so that it will not wrinkle; under the child's buttocks should be a drawsheet which can be changed when soiled without changing the undersheet.

All articles used in the sickroom, such as sheets, pillow-cases and towels, must be soaked in an anti-septic solution in the sickroom, and they should be washed separate from the family washing.

Dishes. Outside the room occupied by the patient should be placed a table where all food for the patient and his nurse should be deposited. All dishes used by the patient, as well as his spoons, glasses, cups, etc., must remain in the sickroom and must be washed there.

The attendant should never touch food or drink inside the sickroom, but should eat either at the table in the hall or in a second room.

Excreta. Expectations, nasal discharges, discharges from the eyes and ears, and the pus from ulcers and sores, etc., should be collected in pieces of absorbent gauze which should be placed in paper-bags and burned at once. Urine and stools must be disinfected with chloride of lime or crude carbolic acid, in both of which they should remain

for at least one hour before being deposited in the toilet.

Food. In all infectious diseases it is best to give the patient a diet of milk and cereals, at least in the beginning; later on it should be left to the ingenuity of the physician, who may have reasons for ordering special diets as indicated by the nature of the case.

The Patient. The skin of the patient must be kept clean by bathing or sponging with luke-warm water at least twice a day, and not even measles, in which disease the effect of water is most dreaded by the laity, should form an exception. When the fever is high the physician may order sponge-baths for its reduction.

The eyes should be washed with some mild antiseptic solution morning and evening; in measles and scarlet fever some mild ointment should then be applied.

The mouth must be rinsed out frequently with some mild tasty solution, in scarlet fever and diphtheria at least six or eight times a day.

The nose should be swabbed with moist or greased cotton swabs, and the nostrils and upper lip should be covered with some mild ointment to prevent their getting sore from the nasal discharge.

In those diseases in which scaling takes place it is advisable to grease the skin to prevent or diminish the itching.

During the acute symptoms of any one of these diseases the patient must be kept in bed as quietly as



FIGURE 57. HOSPITAL BED



FIGURE 58. WOOL TRUSS

possible and all excitement must be avoided; but even after these symptoms have subsided it may be advisable in many cases to keep him still further in bed, for a longer or shorter period, and this is the most trying time for the nurse, who must do her utmost in entertaining him so as to make this seeming hardship, the reason for which he can not understand, lighter for him. He may then be allowed to have simple play-things which do not require any exertion and which can be readily destroyed or disinfected.

Disinfection. When the physician has decided that all danger of carrying the infection is passed, and that it is safe to let the patient rejoin the family-circle, he should be given a final full bath and a shampoo, be given clean clothes which have not been kept in the sickroom, and he is now able to get out once more.

The nurse must now disinfect the room, if this is not to be done by people specially trained in this and under the supervision of the health-authorities; she then takes a bath and a shampoo herself, changes her clothing and she can once more mingle with the outside world.

In case the mother should undertake the nursing of her child herself and should have to tend to her household duties at the same time, she must be extremely careful so that she will not carry the disease to other members of the family; she should have a special gown to wear in the sickroom only, which she removes before entering the other parts

of the house; she must also always carefully wash face and hands on leaving the patient.

The careful, up-to-date physician will bring a long gown when he first visits a case of an infectious nature; this he leaves at the door of the sickroom, and he always puts it on before he sees his patient; this gown remains in the house and is returned to him washed when it is no longer needed.

In all cases of infectious diseases all orders of the physician's should be carried out most assiduously and without any question; it is he who has to take the full responsibility and he should never be hampered in his earnest efforts to do anything and everything that he considers best for the patient in his charge; nor should any member of the family or any outsider be permitted to decry his efforts at preventing the spreading of the disease as new-fangled fads. The mother and nurse must make it clear to the little patient that the physician is his friend and that his directions must be obeyed, no matter how irksome. Then, and then only, can the physician do his very best for his patient and the result will be accordingly.

CHAPTER XV

OTHER DISEASES OF CHILDHOOD

IN comparison with the infectious and contagious diseases of childhood all other diseases or ailments will seemingly dwindle in importance, yet those disturbances of the normal function of different organs, or parts of the body, are by no means infrequent and, therefore, deserve mention.

These abnormal conditions may be due to malformations brought into the world, or they may be due to inherited tendencies, or finally they may arise from external causes, and they may then be traceable to an antecedent infection, though it may be very difficult at times to prove this dependency.

It can naturally not be within the province of a book like this to go into detail about all these disorders, and the writer will therefore give only a brief survey which will indicate to the mother what the nature of any given illness might be, what she has to expect, and when it will be necessary for her to call on the physician for his advice.

DISEASES OF THE BLOOD

In infancy and early childhood anemia of some form or other may be observed quite frequently.

This may be due to wrong feeding, and will then yield readily to a change in the diet, but it may also be dependent upon other and more serious causes, and it may even take on a very grave aspect.

The physician will not be able to make a correct diagnosis of these conditions if he is not given the opportunity to take a sample of the patient's blood for examination. This examination of the blood will give him an insight into the cause of the anemia and will tell him which part of the blood is at fault and where, consequently, his efforts at curing the patient should be directed; but it may also be of inestimable value to him in other conditions, as for instance in appendicitis, when it will tell him if an immediate operation is demanded, or in other chronic conditions in which this examination will be the means of clearing up a case which was otherwise enigmatical.

During the school-age we observe many cases of anemia which arise in children after they have attended school for some weeks and which disappear again during vacation time. Naturally this condition is found mostly in children who have been weakly, but apparently healthy children may also be thus affected. This school-anemia is due principally to three causes: First, bad feeding, as these children frequently do not take the time for breakfast; some children even get sick at the sight of breakfast and they may suffer from the so-called school-vomiting; if they go home for lunch the time will usually be far too short for this meal and they

must therefore bolt it, or if they take their lunch with them to school they have to be satisfied with a cold meal, which, at that, is frequently not well chosen, consisting often of too much sweets; and in the evening the child will in many cases be too tired for dinner. The second cause is the change in the mode of living, when a child who has spent most of its time in outdoor play has to remain many hours of each day in a sitting posture in the air of the schoolroom which is usually bad. Finally, the third cause is found in the psychic factor, a disturbance of which reacts only too frequently upon the health of a high-strung child.

The treatment of these school-anemias is obvious, though the physician must, naturally, determine first if this is really the true nature of the trouble. A step in the right direction towards the prevention of this condition is taken in the open-air schools, where the children are given a substantial lunch; but their number is still far too small though they now are well past the experimental stage, and too many of these are reserved for the children of the wealthy. Weakly children, or those in whose families a tubercular taint can be found, should, wherever possible, receive their education in one of these open-air schools.

In certain families, of so-called bleeders, we find an insufficient coagulability of the blood which may lead to serious and even fatal hemorrhages from slight injuries. This condition is transmitted through the female line, though it appears usually in

males. These children must be guarded carefully against injuries and whenever they are taken to a physician or to a dentist this condition should be called to his attention to avoid serious complications of an otherwise slight operation, thus as the pulling of a tooth or the removal of adenoids or enlarged tonsils.

DISEASES OF THE HEART

When speaking of the infectious diseases of childhood we have seen that many of these, especially inflammatory rheumatism, frequently leave the heart in a seriously damaged condition by interfering with the opening or closing of its valvular apparatus, while others, such as diphtheria, attack the muscles of the heart. Again the outer covering of the heart, the pericardium, may be affected, and this will naturally interfere with the movements of the heart.

Not infrequently a child may be born in which the development of the heart may have been arrested at some stage, or in which the closure of the opening between the two sides of the heart, which normally takes place during the first few days after birth, fails to materialise, or a child may suffer from a disease affecting its heart even before birth. These are either the so-called blue babies, in whom the skin may have a bluish-black colour from the very time of their birth, either all the time or only when they cry or otherwise exert themselves, but

in many of these cases the condition will pass unrecognised until the physician accidentally discovers it. In the severer cases the condition will lead to an early death; the lighter cases may live for years, especially when they have been taught to avoid all physical exertions and to choose a sedentary occupation.

DISEASES OF THE RESPIRATORY ORGANS

Coryza. No ailment is more frequent in childhood than the so-called "cold in the head" or coryza. But while it is a serious disease when occurring in infants, as we have seen before, it is in older children a comparatively mild disturbance, and only if it should occur frequently will it be deserving of attention, because it may then become chronic and its consequences may cause permanent trouble.

Coryza is an infection of the inner lining of the nose, and its transmission is readily accomplished from one person to another; though it is usually favoured by sudden changes in temperature and by chilling from wet feet, or the sojourn in a cold damp place and like exposures, still any of these exposures will never lead to a coryza if the means for an infection are not present at the same time.

We can observe two types of this infection which vary considerably in the severity of their symptoms. In one the anterior part of the nose only is affected, and the symptoms caused by this are rather slight; the child is as a rule cross and cries easily, it has a

slight rise in the temperature, it sneezes, has running eyes and nose. In from four to six days the trouble is usually past. Not so the second form, which affects the posterior parts of the nose as well; in this we observe fever, which may be quite high, and the nasal discharge may be profuse and cause sores on the upper lip. The child suffers considerable discomfort from the occlusion of the nose, a feeling of dryness and irritation in the throat which is responsible for a constant hawking. This is the infection which leads so frequently to an infection of the middle ear and which is also liable to descend into the deeper air-passages.

Adenoids. At the junction of the cavities of the nose and the mouth in front of the spine is located some lymphatic tissue, similar to that which forms the tonsils; this so-called third tonsil is especially large in children with a peculiar "lymphatic" constitution, but from the irritation of repeated attacks of posterior coryza and especially from the infection in cases of chronic inflammation it may grow to so considerable a size as to interfere seriously with the normal nose-breathing, and also to occlude the opening of the Eustachian tubes. The result of this is seen in the peculiar expression in the faces of these children, who keep their mouths open habitually and who will also have a deformity of the hard palate with a protrusion of the middle incisor teeth and a flattening and broadening of the bridge of the nose, which makes a diagnosis of adenoids at one glance so easy to the initiated.

These children suffer frequently from a persistent irritating cough, due to the fact that the air which has not been filtered, warmed and moistened by its passage through the nose, as in normal breathing, irritates the throat, especially in the evening on going to bed and at night; during sleep the saliva will also run out of the open mouth and form the characteristic sores in the corners of the mouth and will also leave the telltale spots on the pillow. The child sleeps badly, it snores, is liable to nightmares, its appetite is poor, its voice is nasal, and its hearing may be considerably impaired; teachers now frequently make the diagnosis of adenoids when otherwise bright children begin to be backward in their lessons.

The treatment of this condition consists in the removal of the adenoid growth, a comparatively slight operation, the effect of which, when not done too late when permanent damage has already been done, is often marvellous. In children with the lymphatic constitution we can frequently prevent the development of adenoids by a proper strict régime and diet. Naturally any chronic infections of the nose should be treated energetically and the child should be guarded against infection with coryza.

Angina. At certain times of the year we will observe infections of the throat in the form of small family epidemics, and from the second or third year of life no infection with pus-producing germs is more frequent than those of the soft palate and the tonsils.

The lining of the soft palate and the tonsils will be found on inspection to be deep-red and swollen, though this is not easy in children who have not been trained to having their throat examined; then, later, we will see the tonsils to have white stripes upon them and in their folds or they will be studded with yellow cores; these are the two principal forms of tonsillitis.

The symptoms of this inflammation, the so-called angina, are always severe, the child is quite dull, it complains of headache and wants to go to bed, it may vomit, beginning with chills, the temperature may rise rapidly, swallowing is painful and difficult, often so much so that the little patient refuses to take food and medicine, the voice is thick, the secretion of mucus is considerable, the glands under the jaws are swollen and painful. The disease lasts about a week with continuous high fever.

Appendicitis is a frequent sequence to this disease and this is surely more than a mere coincidence; the same is the case with inflammatory rheumatism. In some cases, though not as frequently as happens in adults, the infection may lead to the formation of an abscess in the tissues surrounding the tonsil, so-called quinsy. In young children it may cause an abscess in front of the cervical spine, the retropharyngeal abscess. The infection of the glands under the jaw may dominate the picture and the infection in the palate and tonsils may be so slight as to be entirely overlooked, then we will observe swelling of these glands as well as of those down

the neck; this condition usually lasts for several weeks and has been called "glandular fever."

Diseases of the Throat. An inflammation of the throat is a frequent accompaniment of coryza. This affection may either be very light, only a superficial inflammation with hoarseness and secretion of tough mucus which becomes loose very quickly, or we may observe a severe inflammation of the throat which will be the more dangerous the younger the child, because in young children the throat is naturally comparatively narrow and any severe inflammation can readily interfere with respiration; in this latter form the throat and the windpipe are both quite sensitive to slight pressure.

In both these varieties of so-called laryngitis we observe the attacks of pseudo-croup, which we have already described under the diseases of infants.

When these attacks of laryngitis are frequently repeated—and some children are very prone to this disturbance—we may observe chronic hoarseness which will necessitate long-continued treatment, best with change of climate.

Tubercular ulcers in the throat are not infrequent in children. Occasionally we will also observe cases in which the inside of the throat is more or less studded with small wart-like growths which may seriously interfere with respiration and which will make the child almost voiceless; the treatment of these is surgical, though they recur very easily.

Diseases of the Windpipe and Bronchial Tubes. Inflammation of the windpipe, tracheitis, is one of

the most frequent and, if taken in hand in time, one of the lightest affections of childhood, especially at the school-age.

This grippy infection begins with headache, chilliness, lassitude, restlessness, and lack of appetite, the fever is rather high for a day or two, and an inflammation of the nose and throat has preceded it by some days. The child complains of a raw, burning sensation behind the upper part of the breast-bone. Cough is the principal symptom; this is at first dry and harsh, but it will soon become loose; the duration of the trouble is rarely as long as one week.

In cases in which this type of cough lasts for weeks or months a tubercular infection of the glands located at the spot where the wind-pipe divides into the large bronchi must be suspected. This is perhaps the most frequent type of tuberculosis in childhood, and it should always be looked for in any case of chronic cough in childhood.

Adenoids will also cause chronic coughs of this type, which will disappear promptly upon their removal.

Real bronchitis which involves the smaller bronchial tubes is by no means as frequent as the inflammation of the wind-pipe in children, and it seems that this is favoured in many, if not the majority of cases, by the lymphatic constitution, and it is then observed in the fat, pale children who are prone to repeated attacks of this illness; it is also often seen in rickety children.

If the disease should involve many of the smaller bronchial tubes it will seriously interfere with the aëration of the blood in the lungs, and the child will be short of breath; the tough secretion in the bronchial tubes permits the ingress of air, but the expiratory force is insufficient to permit the egress of air; the lungs will remain dilated, the chest expanded, and expiration is difficult and accompanied by a whistling, wheezing noise. The secretion is at first tough, later loose and like matter; as children under seven years do not expectorate we will only see this then when the child vomits.

In older children the disease is not serious under the proper care, while it is a frequent cause of death in infants, as we have seen before.

Chronic bronchitis and asthma are in lymphatic children the results of the dilatation of the lungs, due to repeated attacks of acute bronchitis. Usually we hear the story that a child at school-age is very susceptible to climatic changes and that it is suffering from one attack of bronchitis after another, so that it has to be kept from school most of the winter; frequently the child will also be suffering from asthmatic attacks. The physician will find on his examination that the chest is distended and the lungs are overfilled with air.

Long-continued treatment with changes of climate will cure these cases, but unfortunately only the wealthy can avail themselves of these measures. It is needless to add that the lymphatic constitu-

tion must be taken in hand before we can expect a result from any kind of treatment.

Diseases of the Lungs. Up to the age of three years the inflammation of the bronchial tubes is very liable to descend into the lungs and to cause here a disseminated inflammation, a so-called bronchopneumonia, one of the most dangerous diseases of young children. After this age, except in severe cases of whooping cough and measles, the children suffer from the lobar form of pneumonia, in which part of a lobe or a whole lobe or even more than one lobe of the lungs is involved. This latter disease starts suddenly with a chill and high fever, pain in the chest and a dry racking cough. After a few days the cough becomes loose and in children over seven we will then observe the rusty-brown expectoration which is so characteristic of the disease. Later the expectoration will look more like pus.

The fever remains high for a week or more and it then comes down suddenly and will frequently drop down way below the normal; at this time the heart must be watched very carefully.

Whenever the pneumonic infection reaches the outer part of the lung its outer covering, the pleura, will be affected and the inflammation of this is the so-called pleurisy. This pleurisy may either be dry, when it is rather painful so that the child will be afraid to cough, or that part of the chest will become filled with liquid, which then encroaches upon the space for that lung, and thus results in shortness of breath. In children this liquid in the chest will in

many cases disappear by itself, but in quite a considerable number the physician will have to withdraw some of it before the child can recover. In some cases also, especially when the child has harboured in its system a purulent infection, as for instance a running ear, the pleuritic liquid is liable to be transformed into pus (empyema); these cases will require surgical intervention for their relief.

Tubercular infection of the lungs is of the rapid type in young children; in older children it is in no way different from that in adults.

DISEASES OF THE DIGESTIVE ORGANS

The Mouth. Inflammations of the lining of the mouth are most frequent in infants, as we have seen above, but later in life we will also observe some of these.

In feverish diseases, especially in pneumonia and in the grippy infections, we can frequently observe small blisters to appear around the mouth, on the lips, which later form sores; this herpes, or as it is commonly called "cold-sores," may also appear inside the mouth.

The care of the teeth has been spoken of before.

On the tongues of lymphatic children we may frequently observe a peculiar coat which covers part of the tongue, assumes all kinds of phantastic shapes, and may suddenly disappear to reappear again quite as suddenly; this so-called "geographic

tongue" is one of the characteristic symptoms of the lymphatic constitution.

Appetite. A poor appetite, which is usually combined with constipation, is one of the most frequent troubles in children. On investigation the physician will either find that the child has been overfed for some time, especially with meat, and then a proper change in the diet will be all that is required to remedy this condition; or he may find that the dietary of the child was too monotonous, often containing too much milk, and the remedy for this condition will also be obvious; or finally the child may be suffering from an actual loss of appetite with consequent undernutrition and a weakening of all the muscles. These cases may be very obstinate and they require the most careful handling; frequently we will observe this condition in the nervous children of nervous parents and they may then, by no means rarely, suffer also from nervous vomiting, a condition which is among the hardest for the physician to combat.

Constipation. Chronic habitual constipation is also very frequently observed; usually the condition is an inherited one, but it is at the same time the result of a faulty bringing up of the child combined with a diet which contains an insufficient amount of residue. In these cases the diet must be carefully regulated first of all, and the child must be taught to go to the toilet at the same time every day, and that it must not be allowed to leave it until it has done its duty. We must, however, remember that each child has by nature its own time for this

function and that it is very difficult to change this time, though it may be very inconvenient, coming, for instance, during school-hours. But here as everywhere the child's health is the first consideration, and teachers should show a little more regard for this than they are wont to do; when necessary the parents should request the teacher to allow the child to leave the class-room at the appointed time regularly every day.

The best time for an evacuation of the bowels is naturally early in the morning on arising, at which time it will not interfere with anything else. A glass of cold water taken the first thing in the morning, on awakening, will often be all that is needed to regulate the function of the bowels.

Medicines for the evacuation of the bowels, even suppositories or injections, should not be employed for any length of time without the physician's orders, and the latter will frequently find some means of getting along without the habitual use of any of these unnatural measures.

Dyspepsia. Dyspepsia in older children, a "spoiled stomach," is perhaps the most frequent disturbance of health; it is very apt to occur after holidays and after children's parties; it is then due to an overloading of the stomach with sweets and greasy foods. A dose of castor oil, followed by a few days of restricted diet, will cure this condition in short order. In some children, however, things are not quite as simple as all this; they react with high fever, severe vomiting of undigested food and head-

ache; some children will also have convulsions and will be in a deep coma; at the same time when approaching the child one will be able to perceive a peculiar odour around the child, similar to that of rotting apples. This condition demands most careful treatment by the physician and the diet of these children must be regulated very carefully.

Some children react to any excess in eating or to unaccustomed food by having attacks of diarrhea. In these cases also we must carefully superintend the feeding of the child, and we will then be able to overcome this irritability of the intestine.

Appendicitis. Appendicitis is very frequent in childhood. It appears in two types. Either the acute, which is always a surgical disease, and which may lead to peritonitis within a few hours if not operated at once; while it is relatively harmless if the surgeon is allowed to remove the offending organ in time. Or it may be a chronic affection, when the child will complain of occasional, more or less frequent, pains in the stomach or a stitch in the side after exertion or after a hearty meal. Inasmuch as we can never tell when this chronic appendicitis may light up into the acute form, this condition should also be remedied by the removal of the diseased appendix before it will have had a chance to cause the formation of an abscess or before the repeated attacks of inflammation will have left adhesions which will make an operation, which is most likely demanded sooner or later, a difficult one.

Tuberculosis. Tubercular disease of the abdom-

inal organs is by no means rare in childhood. Most frequently we will find an infection of the glands along the spine and in the mesentery, by which the bowels are attached; next in frequency is tubercular peritonitis; this may appear in either of two types, the exudative in which the abdomen is distended by a large amount of liquid, or the dry type in which the intestine is matted together in such a manner as to interfere with its motility and its proper function. In the exudative type operation, removal of the liquid, has been found effective in many cases; of late the treatment with exposure to sunlight has given some remarkable results in both forms, as in tuberculosis in general.

Ruptures. Herniæ, or ruptures, where the intestine leaves the abdominal cavity through one of the preformed openings and where it can be felt under the skin, are quite frequent in childhood.

Umbilical hernia, rupture at the navel, appears in infancy and it should not be treated with one of the many kinds of trusses which may be bought or with home-made ones because the majority of these make the condition worse or prevent healing; the best remedy consists in strips of adhesive plaster properly applied by the physician.

Inguinal hernia, rupture in the groin, is mostly found in boys. Here a well-fitting truss made of a skein of wool and properly applied may remedy this condition (see Fig. 58). If it persists after the first year of life an operation, which is not dangerous, will give most universally good results and effect a

permanent cure. This is surely preferable to the constant wearing of a truss, with its irritation of the skin and the pain and discomfort; in the end it will prove to be cheaper as well.

It is necessary to state here that crying will not cause a rupture, though it may enlarge an existing one; the tendency to ruptures is present at birth and it is in many cases inherited. The writer has seen three brothers with this condition who were all cured by operation; one of their sisters was also cured by the surgeon of a very large abdominal hernia.

Rectum. Of the diseases of the rectum, the last part of the bowel, two are most frequently observed in childhood. Fissure of the anus, where the rectum joins the skin, is in the first place due to the forced passage of large hard stools, which overstretch the anus and result in a tear in the skin in this location. This tear is so painful when the stools pass over it that the child will fight against this from dread and it will then suffer from secondary constipation. By slight cauterisation the physician will be able to remedy this condition in a short time.

Some children, from two to four years of age as a rule, who are suffering from difficult evacuations of the bowels will press so hard at stool as to press out part of the rectum, so-called prolapse; in this condition the stools must be carefully regulated first of all, and they must be passed in the prone position on the back. The physician must also teach the

mother how she can prevent the bowel from protruding.

Parasites. Itching around the anus is most frequently due to animal parasites which live in the lower bowel, the so-called thread-worms, which look like pieces of white thread cut to the length of about two-fifths of an inch and which can be found readily on inspection of a spontaneous stool or after the injection of water into the lower bowel; their eggs are also easily found by the physician by scraping over the skin around the anus and examining this under the microscope.

Owing to the itching, the child will scratch itself, especially at night, and then the eggs get on its fingers, whence they are transferred to the mouth and the child will thus reinfect itself; this is the reason why it is often so difficult to rid the child of these parasites, and in all cases the child should wear closed drawers by day as well as by night to prevent this reinfection.

Of the other animal-parasites living in the human intestine two are also quite frequently found in children. First the round-worm, which is from eight to twelve inches long and as thick as a large wooden knitting-needle; this may be found in the stools and it may also be pulled by the child from its nose or mouth; its eggs may be found in the stools by the physician. Second the tape-worm, which appears in the stools like pieces of tape cut into varying lengths. The eggs of the round-worm get into the child

through raw vegetables, those of the tape-worm through raw or underdone meat.

Mothers still frequently refer all kinds of nervous symptoms on the part of the child to worms, such as picking of the nose, restless sleep, grinding of the teeth during sleep, etc.; the physician however will want to be sure of his ground and will want to see the offending parasite or find its eggs under the microscope before he subjects the child to the treatment against worms; the more so, as in most cases this suspicion is unfounded. When the diagnosis of worms has been confirmed strict adherence to the physician's directions, not only as to medication but also as to washing after stools, frequent changes of the underclothing and the bedclothes, etc., have to be carried out religiously to insure the success of the treatment, which is sometimes by no means easily accomplished.

Diseases of the Liver. Enlargement of the liver is frequent in young children in whom it is very often found when they are rachitic. Tuberculosis and congenital syphilis will also frequently cause an enlargement of this organ.

The one disease of the liver which is most frequently observed in older children is catarrhal jaundice. This disease seems to be epidemic at certain times, so that several children in one family will be suffering from it at once or in short succession. It is more frequent in girls than in boys. The child will be suffering for two days from general symptoms, such as headache, nausea, vomiting,

constipation, slight fever, and a coated tongue, when, usually on the third day, the whites of the eyes and the skin will show the characteristic yellow colour, the urine will now get dark and the stools light, greyish-white. The liver is enlarged and may be tender. The child may also suffer considerably from itching. The disease lasts only rarely longer than three weeks. Then the stools will be coloured again, the urine will become lighter, and, last, the skin will again assume its normal colour. Though the child will as a rule be quite lively, it is better to keep it in bed because this innocent infection may, though it rarely does, assume a dangerous nature.

DISEASES OF THE URINARY ORGANS

The Kidneys. Inflammations of the kidneys are by no means as rare in childhood as had been generally assumed; inasmuch as any severe affection of these important organs is liable to become chronic and to lead to prolonged invalidism and eventual death, an examination of the urine should be a routine measure in every illness of childhood.

Inflammation of the kidneys, nephritis, is usually the consequence of one of the infectious diseases, and among these scarlet fever takes the most prominent part, so much so that in cases in which this disease has been overlooked an examination of the urine may reveal the diseased condition of the kidneys, and then careful inspection may show that some scaling of the skin is still persisting; but

even a slight grippy infection may damage the kidneys irreparably.

Whenever the child should complain of headache, vomiting, and loss of appetite the urine should be examined; when the kidneys are diseased it will frequently be reddish-brown from the admixture of blood. When the secretion of the urine is diminished the first signs of dropsy will be noticed as a bagginess under the eyes and a swelling of the ankles. In severe cases the dropsy may assume large proportions and the lungs may be flooded with the retained liquid. Chronic nephritis causes serious injuries to the heart.

Tuberculosis of the kidney is not rare in children, though it is usually observed in children who have the symptoms of tuberculosis in other organs.

Stones in the kidneys or bladder are mostly observed in Hungarian and Asiatic children, though they may also be found in others.

Inflammation of the bladder, cystitis, which may ascend into the kidneys in severe cases, is relatively a frequent disease especially of early childhood; it is mostly observed in girls and is then due to the infection with the germs of the stools in diarrhea. In girls the urethra is very short and its opening wide, so that the bacteria may easily enter, especially when the child, having soiled itself with its stool, is cleaned by wiping toward the urethra. Great care must, therefore, be taken to always clean the child from the anus backward.

The symptoms of cystitis are irregular fever and

painful as well as frequent urination. Examination of the urine will make the diagnosis sure. When the disease has not been recognised in time it may last many months, but even under the best of timely care it may be quite obstreperous.

Phimosis. In boys a tight adherent foreskin with a narrow opening will lead many times to difficulties in urination and also to inflammations of the parts, especially in summer. Stripping the foreskin back in the bath and cleanliness of the parts will many times remedy this condition, but if the mother should be unable to do this the physician will readily succeed in most cases; only rarely will surgical intervention be required, though circumcision is a slight operation, the effect of which is lasting.

Infection. Infection of the outer genitals is, especially in girls, a frequent and very persistent trouble, which requires careful and long-continued local treatment.

Masturbation. A word also about masturbation or self-abuse which may be observed even in very young children; this may be due to irritation of the genitals by thread-worms, or from a tight foreskin in boys or an inflammation in girls. It requires the most careful attention and observation to make the diagnosis, and the treatment of this bad habit is very difficult even under the most favourable conditions.

DISEASES OF THE NERVOUS SYSTEM

Meningitis. The inflammation of the membranes covering the brain and the spinal cord is due to an

infection; it is usually the consequence of an infection in or near the head, such as in the ear or the nose. It may also spread to the meninges from the other infections such as pneumonia, erysipelas or infected eczema. Or the bacteria may be introduced directly through head injuries.

The symptoms are first general, high fever, severe headaches, and vomiting without retching, the vomited matter being shot out in a large gust. The typical symptoms from the brain consist in delirium, stiffness of the neck, convulsions and then unconsciousness, which may be interrupted by sudden cries.

We now have a comparatively easy means of diagnosing these cases, by the so-called spinal-puncture, which consists in pushing a hollow needle into the lower spinal canal and thus obtaining some of the spinal fluid for examination. As this spinal-puncture has also been found to be really a curative measure, parents should give their permission for the performance of this procedure, which is almost painless.

Meningitis is in most cases a fatal disease, and even those cases which recover may have their brains left in such a damaged condition as to leave the little patient deaf, or blind, or an idiot.

Tubercular meningitis is a disease of young children mostly. It usually ends fatally in from two to three weeks, though quite recently some cases of this disease have been reported cured by spinal-puncture. Its course is similar to that of the other forms of meningitis. Frequently the little patient

may wake up from its unconscious condition and act quite naturally, even sit up in bed and play for a few hours, and then be dead in from twenty-four to forty-eight hours. This is liable to instil a ray of hope in the parents which is sure to lead to a disappointment which is so much severer.

Tumors. Tumors of the brain are also sometimes observed in children. In rare cases an operation may offer some chance for recovery.

It would lead too far and it would not be within the province of this book to mention the many different kinds of spasms and paralyses due to diseases of the brain and spinal cord. We will now mention briefly some of the so-called functional disturbances which may be observed in children.

Epilepsy. Epilepsy is a disease which frequently begins in childhood; it consists in convulsions which are accompanied by unconsciousness. In cases of infants suffering from convulsions the physician will be placed before the question, if these convulsions are the first signs of epilepsy or if they are due to other causes. Whenever a child which has been well so far begins to have "fainting spells" in his third or fourth year this should be suspicious of epilepsy.

Epilepsy is especially frequent in children who have sprung from nervous families, in which one or more of the ancestors on either or both sides have suffered from insanity or epilepsy. In the offspring of consanguineous marriages of persons of such tainted heritage the disease is still more likely to appear.

Epileptics are best taken care of in one of the colonies for such patients and they should never be allowed to marry.

Hysteria. Hysteria is by no means a rare trouble in children, even infants, and the protean picture which it may present in the adult will be made even more complicated owing to the youth of the patient. The treatment of hysteria in children is much easier and more successful than in adults, though it will often be difficult to carry it out in the surroundings of the home, while the recovery will be much more rapid and prompt when the case can be treated in a hospital or an institution.

Spasms. Tics or spasms of some of the muscles of the face may at first only be bad habits and often only in imitation of some person, especially the teacher, but once they have taken hold of the child they are very difficult to eradicate and they then require long-continued treatment.

Night-terrors. Night-terrors are attacks of fright in children, usually before midnight, a few hours after the child has gone to sleep. The child will sit up in bed and cry with terror and complain of some fancied apparition; it is usually not entirely awake, and it will go to sleep again after it has been quieted down; in the morning it will not have any recollection of the nightly occurrence, which may be repeated night after night. These attacks are most frequently seen in children who have adenoids, and with their removal the attacks usually disappear. The telling of ghost-stories and fairy-tales in the

evening and hard playing before the bed-time are also a frequent cause.

Bed-wetting. Bed-wetting, the involuntary act of urination during sleep, which may in severe cases be also an occurrence during the day when the child forgets itself during intense playing, is a nervous affection, and it has usually nothing to do with diseases of the urinary organs. It must be regarded as a disease; punishment is not only useless but the fear of it may make the condition worse.

The trouble is usually a continuation of the involuntary urination of infancy, though it may also set in after the child has been keeping itself dry for some years. It requires careful management; it is very important not to let the child have anything to drink after five in the afternoon and to take it up once or twice before midnight, before the time when the accident is most likely to occur. As it has been found that these children usually wet their bed when they are sleeping on their backs some means to prevent this, such as tying a brush to the back, will also help in many cases. Even after the child has been apparently cured the accident may happen again occasionally for some years.

DISEASES OF THE SKELETON

Fractures. In the newborn, after difficult labour, fractures of the upper arm or of the thigh-bone are occasionally observed. In young children fractures are rarely complete, as they will be later in life

when the bones will have become harder, but they will be seen in the form of a severing of the continuity of the bone on one side only, the same as we observe when we bend a green stick too far; they are therefore called green-stick fractures. In rickets and in scurvy fractures or separation of the ends of the bones are not infrequently observed, but they may be easily overlooked by the mother.

Another fracture which is very easily overlooked, even by careful mothers, is that of the collar-bone, which is the most frequent in children. In older children fractures do not differ in any way from those in adults, and with the Roentgen rays, which now are accessible even in smaller communities, the position of the broken ends can be controlled and malunion and deformities can now much easier be avoided. No fracture should be treated without this valuable aid. The X-rays have also shown that many cases of so-called sprain of the wrist or ankle are in reality fractures and must be treated as such, and that the injuries to the fingers from baseballs are likewise fractures, usually of the last bone of the finger; the unsightly deformities of the fingers can be easily avoided by appropriate treatment.

Dislocations. Dislocations of joints when caused by injury are most frequent in the shoulder and they require careful treatment, as they might otherwise become habitual. Congenital dislocation of the hip-joint, either on one side only or on both sides, is most frequent in girls. This is usually not recognised until the child can walk, and then it is evident

by the characteristic waddling gait. This can now be cured in many cases by manipulations and plaster-casts without the use of the knife. The best time for the reduction of this form of dislocation is between the third and the sixth year of life; after the seventh year this method is rarely successful and operation will have to be resorted to.

Diseases of the Bones. An infection of the bone with the pus-producing germs is not rare in children; it is characterised by high fever, severe pain, and swelling in one of the long bones. This condition demands immediate operation, otherwise, if this has been delayed too long, even an amputation may not be able to save the child's life.

Tuberculosis. Tuberculosis of the bones or joints is a very frequent disease of childhood and it should be thought of when the child can not use one of its limbs well, or when it limps or drags its leg, or complains of backache when sitting up. When the disease affects one limb this will usually remain more or less useless, provided the disease has not been recognised and treated early. If it should be in one or more vertebræ the child may remain a hunchback. The physician has, however, the means of obtaining most remarkable results in these cases with exposure to sunlight, provided he sees them early enough, before the destruction has gone too far; though, at best, the treatment has to be continued for many months, and this is very trying to the little patients as well as to their parents. We should, however, never forget how much it will mean

for all concerned if the child can be cured, no matter at what cost in money and patience, yea, even suffering, rather than that it should remain a cripple for life.

Malformations. Congenital malformations of the bones are rather frequent occurrences. Club-foot is the most frequent. This should be taken in hand as early as possible, best at the end of the first month of life, and then manipulations and plaster-casts will cure many of these cases completely, no matter how severe. Harelip and cleft palate, which are due to the failure of the skin and bones of the upper lip and palate to unite, can also be cured by an early operation, about the sixth month of life, and the results will then often be remarkably good. Other malformations are much rarer.

Curvature of the Spine. Curvatures of the spine are in many cases the result of rickets. They can then be observed in young children and should be treated at once. In young girls they are often due to faulty posture in school, at a time when the child is growing rapidly. Gymnastics and properly applied apparatus, which, however, should be made under the supervision of the orthopedic surgeon, will overcome this deformity. In boys it is also observed, though less frequently.

FOREIGN BODIES AND POISONS

Foreign Bodies. Some young children have a habit of putting things in their ears, nose, or even

their genitals, where these things may remain unnoticed for a long time, though they will usually cause some trouble sooner or later.

Whenever a child has a persistent discharge from one nostril this should make us suspicious of a foreign body in that side of the nose, and the writer has removed a number of beans, shoe-buttons, wads of paper, etc., which undoubtedly had been introduced a number of weeks before. Laymen should never try to remove such a foreign body, for they will, as a rule, only make it so much harder for the physician.

Foreign bodies in the eye, especially cinders, which may burrow deeply into the lucid part of the eye, should also be attended to by the physician; home-remedies such as the placing of a flax-seed into the pouch of the eyelid for this purpose, will not do any good.

Some children have a habit of placing dirt of all kinds into their mouths, and it is a very difficult undertaking to break them from this filthy habit, once it has become inveterate.

Needless to say that a child which observes its mother or nurse placing safety-pins or needles into her mouth will likewise do so, and many a mother will save herself some anxious hours if she will only remember to refrain from setting the child so bad an example.

Jackstones, beans, small coins, the little whistles from rubber dolls, and so on, may be aspirated into the windpipe and the larger bronchial tubes, and

even the specialist may find it extremely difficult to remove them.

Poisons. First one word about the different kinds of cleansers, both in dry and in liquid form, which are used so much in households. They contain, one and all of them, strong lye, and if left around carelessly where the child can get at them it may swallow some of them and then suffer severe damage to its throat and gullet which will frequently be fatal even after some years. Much better not to have these things around the house at all; the manufacturer of these cleansers should be forced by law to label them for what they are as strong caustic poisons.

Medicines, especially those in tablet form, which frequently contain some very powerful drugs, also antiseptic tablets, should never be left lying around in the home; only too often will a child pick them up and eat them for candy.

Pure carbolic acid also should never be left around and is best not to be found in the household. Even with very dilute carbolic acid one must be very careful in children, as a dressing with a dilution of this acid may cause gangrene. The best and quickest antidote for carbolic acid, and one which should always be found by its side in the medicine closet, is alcohol, which neutralises the acid at once.

For poisoning with acids a mild alkali, such as baking soda, for poisoning with alkalies and caustics a mild acid, such as lemon juice or diluted vinegar, should be administered at once.

In poisoning with powerful drugs, such as opiates, strychnia or atropine, the child should be given at once, before the arrival of the physician, white of egg to bind the poison and should be made to vomit with warm salt and water or mustard water, as the delay of a few minutes may be decisive.

But here as well as in other matters in medicine prevention is better than a cure. All powerful drugs and medicines should be locked away in a medicine closet beyond the reach of the child; then only will the mother have a reasonable assurance that the child can not get at them.

CHAPTER XVI

DEFECTS OF THE EYE AND BLINDNESS IN CHILDREN

BY F. PARK LEWIS, M. D., F. A. C. S.

THE proper time to consider the eyes of the newborn child is before he is born. A recognition of possible contingencies that may occur is part of the modern programme of preparedness. To be obliged to say to the mother of a newborn infant that there exist serious defects of its eyes is only less dreadful than to say that the child is a monstrosity. If by the exercise of any measures sight may be preserved, that would otherwise be lost, no efforts can be considered too great.

The defects of sight that the child may bring into the world are of two kinds; those due to pre-existing disease in the mother, and those due to defects in development of the eyes of the child.

In a most admirable series of studies the late Dr. Charles Stedman Bull demonstrated the urgent necessity of recognising the presence of constitutional disease in the mother before the birth of the child, in order that active measures for its control might be promptly instituted, and the disasters might be avoided.

It is no less necessary when this has been overlooked to recognise early the presence of such disease in the infant, and to put the baby under correct and effective treatment as soon as may be. The presence in the genital tract of the mother of virulent infectious germs should, when possible, be recognised and controlled before the child is born.

By instituting active measures the otherwise almost inevitable infection of the eyes may be avoided and a serious menace to the sight of the infant obviated.

Children may be born with defects of almost any of the essential eye structures. These may include imperfections of either of the eyelids, defects, imperfections or complete absence of structures of the eyeball, extending back to the optic nerve, or the eyes may be too small or entirely absent.

When the sight is exceedingly imperfect, either because of defects inside the eye or because of scars, twitching of the eyes, so-called nystagmus, is commonly found present.

The desirability of an early recognition of existing defects can not be too strongly emphasised, because even when no remedial measures can be instituted the parents will not readily overlook what may be regarded as negligence in the examination of the child on the part of the physician.

Examination of the Eyes of the Newborn. Not only for the satisfaction of the parents, but equally for his own protection, it is important that the eyes of the child be carefully examined by the accoucheur

immediately after the baby is born. Unless a very valid reason exists, as in the case of the premature child, a preventive against infectious inflammation of the eyes will immediately be used. With the premature child, where the vitality is low, this is frequently not well borne. It is well at such a time, even after the fatigue of a long vigilance at the bedside of the mother, to have the child brought to the light in order that the physician may assure himself that the eyes are normal. Should the eyes of the child become inflamed or reddened, or should a discharge come from them, the case should, for the protection of the doctor, as well as for that of the child, in accordance with the legal requirements now existing in almost every state, be promptly reported to the department of public health. In those cases in which the family are unable to meet the added expense, the service of a specially qualified nurse will be provided by the health department. Measures are also provided by the department for the examination of smear slides, so that the nature of the infection may be recognised.

It must never be forgotten that any pus infection of the eyes of a newborn child is a matter of grave importance, requiring skilled treatment, good nursing and constant attention. Except in the simpler cases the care of a capable eye specialist should be secured, and the eyes of the child can not be considered safe until the discharge has finally ceased.

Strabismus. When the eyes cross in a young child it is an almost invariable indication of the ex-

istence of marked refractive errors, in the absence of disease of the brain. Hyperopia, far-sightedness, which is a congenital shortening of the eyeball, or astigmatism, in which the anterior part of the eye is elliptical instead of round, and which therefore necessitates great effort on the part of the muscle inside the eye to blend the images, are usually present and often co-existent.

The first essential is, therefore, that the refraction be properly corrected as soon as the child is old enough to wear the necessary glasses. The writer has successfully prescribed glasses in such cases for children under a year old, thereby relieving the strain upon the eyes and permitting a normal muscle balance, and therefore avoiding the necessity of a subsequent operation.

Of even greater importance than this, however, is the development of the nerve centres in the brain brought about by binocular vision. When this is not done the in-turned eye becomes dull-sighted, and a restoration of vision at a later date is exceedingly difficult.

Eye Strain. Eye strain is a result of refractive imperfections, chiefly far-sightedness and astigmatism, and may manifest itself in several ways. The eyes become blurred and tired after use, headache may be in the forehead, in the temples, or in the back of the head. It may cause inflammation of the eyelids, or irritation of the lid margins, while remote effects are by no means uncommon, such as

excessive nervousness, digestive disturbances, etc.

The character of the headache will often serve in helping to determine its origin. Headaches which occur in the front of the head, and more frequently in the morning after rising, with heaviness and a flushing of the eyes, are more commonly due to nasal obstructions or adenoids, while eye-headaches occur during the day and are increased by the use of the eyes.

Glioma. One of the conditions most to be dreaded and demanding early recognition in young children is glioma, or malignant growth of the eye. It probably is present in an undeveloped form from birth, but it is usually between the fourth and fifth years of childhood that it becomes sufficiently developed to be visible to the naked eye. Happily, it is an exceedingly rare occurrence, being present in about one of ten thousand cases of eye diseases, and, more fortunately, it rarely involves both eyes. The pupil is usually enlarged and when the malignant growth has sufficiently invaded the eyeball it can be seen through the pupil as a yellowish opacity. While it is still encapsulated within the eyeball the life of the child may be saved by the prompt removal of the eye, but having once invaded the tissues around the eye, extension of the cancerous growth is rapid and inevitable.

Phlyctenular Ophthalmia. As the baby passes from infancy to early childhood another serious condition is apt to occur, which often does not receive

the prompt attention it demands. Whether it is always tubercular in character or not is still a moot question. It is certainly a condition in which the digestion must receive first attention. It begins with a dread of the child to bear ordinary daylight. The eyes are watery and weak and it may be accompanied by an eczema of the lids. Sometimes a like condition involves the nose, though not infrequently the eyes alone are affected. If the eyes are carefully examined, which is difficult because of the dread of the child to bear light, a small blister will be found at the margin of the lucid part of the eye, the cornea, frequently extending into the cornea. The importance of an early recognition and prompt treatment of such cases is emphasised by the fact that scars will follow the healing of these ulcerated surfaces, and when ultimately the eyes recover, as they usually do, the sight will be found permanently defective. Every line of clear cornea, therefore, that can be conserved is of the greatest value, for neglect means permanent loss.

Among the poorer classes of people, and in dispensary practice, young children suffering from these corneal ulcerations are usually found to be badly fed, being allowed all of the indigestible things found upon their parents' table. They frequently spend the pennies that are given them to solace their discomfort for cheap candies. It is of the first importance, therefore, that a proper dietary should be chosen and insisted upon.

DEFECTIVE SIGHT

The Blind Child. The diagnosis of blindness in the child, when such a deplorable condition exists, should be made on the earliest possible occasion, and it is upon the physician that this responsibility rests.

The parents will be very reluctant to admit to themselves the existence of defects which they so much dread, but it is far better for many reasons to face facts as they are than to deceive one's patients and one's self with vain hopes when blindness is once present.

If it is evident that the child is blind, the whole course of its subsequent life will be modified by this distressing fact, and the remodelling of plans for the child's education will be necessary.

The doctor who has given so much thought to the cure of disease, unless he has also been a student of social conditions, was not, at least until recently, concerned with child welfare. Within the last few years the study of the child has taken on a new interest and an added importance, but even within this field comparatively little has been said or written in relation to the management of the child whose possibilities are limited by some physical defect.

There is no one who could more properly advise with the parents of a blind child, or of one whose sight is so defective as to materially limit its possibilities of normal development through this affliction, than the family physician. It is most important, therefore, that he should not only be able to rec-

ognise as soon as possible after its birth that the child is blind when this fact exists, but that he should be able to suggest to the parents what course shall be pursued in regard to the care, the education, and the training of the child during those intervening years before he can be sent to one of the special schools which have been provided for him.

There are two things, therefore, which it might be well to emphasise. First: the necessity of recognising the fact that the child is blind or has defective eyesight at the earliest age possible. Second: the manner in which the brain is developed through the training of the remaining special senses in the absence of sight, in order that by this development the child might be able as soon as possible to supplement the absence of sight by the use of the other senses.

In those cases in which gross physical changes are present and in which marked deformity of the eyeball results, it is, of course, easy to determine that the child is blind. This is equally true whenever the eye-structures are obviously abnormal, such as in that rather rare condition of absence of the eyeballs, or in abnormal enlargement of the eyeballs, in complete congenital cataract, and in other like noticeable defects. But there are many cases in which markedly imperfect sight or total blindness may be present with an apparently perfectly normal eyeball. These are the congenital atrophies of the optic nerve, or other changes deep in the eye

which are discoverable only by the use of the ophthalmoscope.

To Determine Whether the Child is Blind. As all young babies roll their eyes aimlessly during the first weeks of life it is difficult to determine, from observation merely, the absence of sight. This difficulty is increased, if, as more commonly happens, blindness is not complete, but objects are imperfectly seen. If, however, the pupils are widely dilated and unresponsive to light, and the eyes continue to move aimlessly from side to side without attempt to fix them upon an object, and more particularly in the presence of spasmodic twitching of the eyeballs, so-called nystagmus, associated with an unwillingness or an inability on the part of the child to follow a light with his eyes when it is moved before him; all of these would be strong presumptive evidence after the sixth month that the vision is so imperfect as to warrant an ophthalmoscopic examination, by which a conclusion can be reached with much greater certainty.

The Blind Baby. However rapid may be the development of the child after it has reached school age, the period of greatest plasticity and quickest responsiveness is during the months of babyhood and the early years following, and it is through the sense of sight that impressions, carried to the brain, exercise the most profound influence upon the brain development. With the visual images every other sense-impression is correlated. The object which the child sees, in order that he may realise its position

in space, must be verified by the sense of touch. All of the sensory centres, therefore, which have been energised by the touch of the fingers, if the object is held in the hand, of the feet as they touch the floor, of the arms and the limbs as they move through the air, every one of these millions of nerve-units is brought into direct relationship with the corresponding number of other nerve-units, so-called neurons, in the sight-centre, so that every motion is sending a flood of nervous energy surging through the brain of the child. In that way he becomes conscious of his position in space, and he develops what is known as the stereognostic sense, or the consciousness of solid objects.

Cut off as the blind child is from the primary energising influence of the visual impressions he is intellectually hampered and limited, unless every possible supplemental effort is employed to replace, as far as may be, the advantages which, in comparison with the seeing child, he is obliged to sacrifice.

The blind baby, not seeing the objects around him, is not, as is the seeing child, unconsciously or persistently being educated as to their form, their shape, their size, their importance, their meaning, in a word, their values. He lives in the dark, and every motion or every step which he attempts to make is an experiment and an adventure. The next step may precipitate him he knows not where. It may be from the top of the stairway. He can have no means of knowing. He is living in a world separate and distinct from that of his seeing associates.

This fact should be early recognised and constantly borne in mind.

The blind baby must be talked to more than the child who sees. He must be allowed, carefully, to touch the objects about him, in order that in that way he may learn what he can about them. He must not be allowed to be frightened by taking a misstep. He must not be startled by being touched suddenly and without warning. A nervous impression of that kind may leave its result for months, if not for years, upon the sensitive organism.

When he is old enough to creep he should be allowed the freedom of a room, from which all objects against which he might hurt himself have been removed. The floor should be of one level so that there may be no pitfalls for him. He must be allowed all manner of harmless things to handle, and he must always be spoken to as one comes near him that he may not be startled. Large motor and sensory areas of his brain may be trained by allowing him to feel, to touch, and to handle things varying in degrees of hardness, of smoothness, and of different shapes and forms. He will in that way be getting such approximate impressions as he can,—limited as those are compared to the possibilities of the seeing child.

At a very early age, too, auditory areas may be actuated by singing simple melodies to the child, not in the vague and meaningless way, but carefully and in tune where it is possible for the mother to do so. The attention in that way can be directed

and a recognition of different tones will begin at a much earlier age than is ordinarily supposed. Let it constantly be remembered that all of the moving pictures that pass before our eyes are blotted out for the blind baby. There is nothing but darkness before his unseeing eyes, and this monotony must be varied by greater attention to details that will interest him than would be necessary with a seeing child.

At a very early age any other existing corrigible physical defects should, if possible, be removed. It is bad enough for the child to be blind. He should not be still further handicapped by the presence of large tonsils, by adenoids, and the consequent inflammation in the ear and deafness, or by any other defects of the body.

If the eyes are so deformed as to be not only useless but offensive in appearance, he should have such surgical attention as will make them appear as natural as possible. It is much easier for him if this is done while he is young. It saves him the embarrassment and handicap in being needlessly disfigured through the years in which he is most sensitive to criticism.

Blindism. It is during the early period of a child's life that blindism develops. It may be due to his struggle to see, or it may be due to irritation still existing that he acquires the habit of screwing the shut fists in the orbits, making useless motions with the face and head and limbs, rolling the head from side to side, snuffing the nose, twitching up one

side of the face; these and numberless other disagreeable habits may at this time of the child's life be acquired, which later are exceedingly difficult to correct.

Any habits that cause him to be less agreeable will make life harder for him.

The Training of the Blind Child. The training of the voice to make it as musical and sympathetic as possible will be a great advantage to the child, and a quiet, self-possessed manner, instead of a nervous and jerky one, will not only make him more agreeable but will give him balance of mind as he has poise of manner. In a word, before the child can be placed under the systematic and special training provided for the sightless much can be done by the intelligent mother, under the advice of the physician, to so aid the child's development as to make life easier and simpler when the systematic training of the school is commenced.

Delayed Instruction. It is not at all unusual to find that children thirteen and fourteen years old are reluctantly taken to the schools for the blind and find themselves handicapped by their utter inability to do the simple things that other blind children easily do because of the mistaken kindness of parents and friends. They are unable to put on their own clothes, to button their shoes, or to use their hands and fingers in the simplest mechanical efforts. The handicap which they suffer is so great that it can never be completely overcome.

While the child is still very young is the oppor-

tune time, therefore, for the physician to make these facts clear to the devoted, but uninformed parents, and to help them to realise that the greatest kindness which they can show to their afflicted child is to give him the training which alone will enable him to compete in the activities of life with those who see.

Schools for the Blind. The time in which the blind child should be placed under the instruction of those specially qualified to train him in a school for the blind is the earliest period at which children are admitted, and that is the kindergarten age. Very often mothers do great injustice to their children by failing to realise this important fact. A mother of a bright five-year-old child who was advised to send her to a school for the blind, said: "Oh, but I couldn't—you know I am her mother"—not knowing that she was withholding from that child the only possible advantage that could in any way take the place of its lost sight.

In the kindergarten, as well as in all grades of schools for the blind, the same ends are sought as in the schools for the seeing. In the literary work the curriculum is that of the grammar and the high school. In the department of music the teaching is that of a thorough and complete school for music, including harmony and composition.

Many of the blind, by reason of the concentration necessary, acquire the rare quality of absolute pitch, which is unusual among the best trained of those who see. Those who are gifted with musical

ears, and are willing to do the necessary hard work, become exceedingly proficient upon the piano and organ. The hands of the pupils are strengthened and the muscles co-ordinated by manual training; while those having less intellectuality, but greater manual skill, are taught such industries as may be performed without sight. These are more varied than one would believe.

The mother of a deaf child will get the most comprehensive advice how she can help her afflicted child from a booklet, "What the mother of a deaf child ought to know," written by John Dutton Wright and published by the Frederick A. Stokes Company of New York.

CHAPTER XVII

HOUSEHOLD REMEDIES AND MEASURES

CHILDREN should not be given any medicine without the physician's orders, and then only for so long a time as he directs.

The smaller the family's medicine closet the better it will be for the children and the healthier will they be, as a rule.

Patented and proprietary medicines are either made and sold with the view that they can not do any harm, and they are then and therefore superfluous, to say the least; or they may contain potent drugs which will then be able to do irreparable damage to the child's organism.

Infants are frequently given decoctions of peppermint, fennel, caraway or anis-seeds for colic. These simple remedies are in themselves not in the least harmful, but if we remember that this colic, for which they are given, is the first sign of a disturbance of digestion, which, if neglected, may assume a most serious aspect, would it not be preferable to have the physician make the necessary change in the child's diet at once and thus to remove the cause for the infant's suffering?

Soothing syrups and colic-cures derive their action from very potent drugs, such as the opiates—paregoric is nothing else but an aromatic tincture of opium—and the writer has seen quite a large number of cases of serious poisoning from their administration, in some of which he was not able to save the life of the little patient. Fortunately the sale of these powerful drugs is now controlled by law, and they can no longer be obtained for a few cents for the mere asking.

Castoria, the action of which is principally due to senna and Rochelle salts, is not the indifferent and safe medicine for children which the manufacturers try to make us believe, and its indiscriminate administration can not be without bad effect upon the child's health. The writer has not seen "children cry for it," but oftentimes after it.

The only safe physic for an infant or child is castor oil, and this should not be given oftener than once in two weeks, at the most, but it should then be given in sufficiently large doses so that it will really be expelled, as it may be absorbed in small doses and then irritate the intestine. The dose for a young infant is one to two teaspoons; later not less than one good-sized tablespoon.

As stated before, physics should not be administered habitually to children, but if the child should have overeaten and should therefore require a cleaning out, a good preparation of cascara, in doses according to the size of the child, in water will be the pleasantest and, at the same time, the safest remedy.



FIGURE 59. SOAP SUPPOSITORY



FIGURE 60. FEVER THERMOMETER

Cathartic pills usually contain irritating drugs which may so affect the intestine that it will finally refuse to fulfil its duty without this unnatural stimulation.

Suppositories evacuate only the lower part of the bowel, and the popular glycerine suppositories, so frequently used for babies, are very likely to irritate the rectum; inasmuch as they are used for their mechanical effect mainly, it is much better, in training the baby to use the chamber, to take a piece of castile soap whittled to the proper size (see Fig. 59), to dip this into *white* vaseline and to hold it in the rectum for a few seconds.

Cough medicines either contain opiates and thus quiet the natural reflex by which the system intends to remove the expectoration from the respiratory passages, or they are liable to affect the child's stomach. Cough-medicines should not be given to children without consulting a physician; the cough may be the first sign of a serious disease and valuable time may be lost by their administration.

Worm-medicines contain a poison for the parasites, and, if given injudiciously, they may also be poisonous for the child. The physician should be the one to determine if they are really indicated, and he is better qualified to prescribe the proper dosage than is the manufacturer or the neighbour.

So-called tonics are also frequently found in the medicine closet and they are either administered when they are not needed, or valuable time may be lost during their administration, when the physician,

had he been consulted, could have found some organic disorder.

Soaps used for children should be nonirritating, first of all, and nothing is better than a good castile or a similar soap; the highly scented and the medicated soaps are very frequently irritating to the child's tender skin.

The same is to be said about the much-advertised ointments, which in many cases keep up the condition of the skin for the relief of which they have been used; nor is yellow vaseline fit to be used for children because it may contain some irritating substances. It is much better to use white vaseline, which has been purified, if we want to use vaseline at all; but, as it is not a fat but a mineral substance, its use on the skin is rather more limited than is generally recognised.

Small injuries are best treated without any bandages; when they are exposed to the air a crust of clotted blood will form which will offer the best protection, while under a bandage and dressings the germs have a favourable chance to grow. For cleansing the skin around such slight wounds plain soap and warm water are best, but the wound itself must not be touched. Carbolic acid should not be used in children, especially not as a wet dressing, because children are very susceptible to this poison.

Larger wounds should be attended to by the physician, who can determine the extent of the injury and its possible consequences. The careful physician will rarely sew up a wound he has not made



FIGURE 61. BRONCHITIS KETTLE



FIGURE 62. IMPROVED BRONCHITIS KETTLE



FIGURE 63. STEAM TENT

himself at an operation, because the danger is great of sewing in some dirt and germs which will interfere with the healing, and the remaining scar will then naturally be larger than it would have been otherwise.

A word also about the mouth-washes, of which there are a very large number in the market. They, one and all of them, contain many different antiseptics but not enough of any of these to do really any good, and plain boiled water, perhaps with the addition of a few drops of tincture of myrrh or thymol solution, would be preferable.

Tooth-powders and tooth-pastes which contain minute particles of some hard material, such as chalk or pumice stone, should be avoided because their continued use is sure to wear off the enamel of the teeth.

The toothbrush to be used by the child should be of the best of material and of the best quality, so that it will not lose its bristles, and it should be soft so that it can not injure the gums and thus open the road to infectious germs.

The care of the child's hair will also be very important. Cutting of the hair makes it coarse, but it does not make it grow, as is popularly believed, nor will singeing the hair do any good. In girls the hair should not be cut at all, though the split ends of the hairs may be clipped off. In boys it is best to keep the hair short, even at the loss of the most beautiful curls; many a boy has had his disposition spoiled by the teasing of his comrades because his fond

mother could not make up her mind to have him part with these ornaments. The scalp of every child should be shampooed twice a week and then slightly massaged, but dandruff-cures and hair tonics are superfluous, as they will not do any good. The best tonic for the scalp is to allow the child to go bare-headed.

A fever-thermometer (see Fig. 60) should be found in every family in which there is a child, and every mother should learn how to read it. In case of illness the mother should know how to take the temperature of the child in its rectum with the well-oiled thermometer. Any considerable fever will tell her to send for the physician at once.

In diseases of the respiratory organs the physician will often order the child to have inhalations of steam, either with or without the addition of some medicine; this is naturally best and easiest done with one of the bronchitis kettles (see Fig. 61) which can be bought at the drugstore, but it can also be done with an ordinary tea-kettle and a piece of garden-hose or a tube made of paste-board (see Fig. 62). A blanket or bed-sheet is draped over the child's crib and the end of the apparatus is fastened to the bed so that the steam will be confined under this steam-tent (see Fig. 63) and thus the air the child breathes is saturated with moisture; care must, however, be taken that the steam does not enter too near the child so that it might get scalded or that it might burn its hands by touching the apparatus. The water in the kettle is kept boiling either by a small



FIGURE 64. WET COMPRESS ON BABY

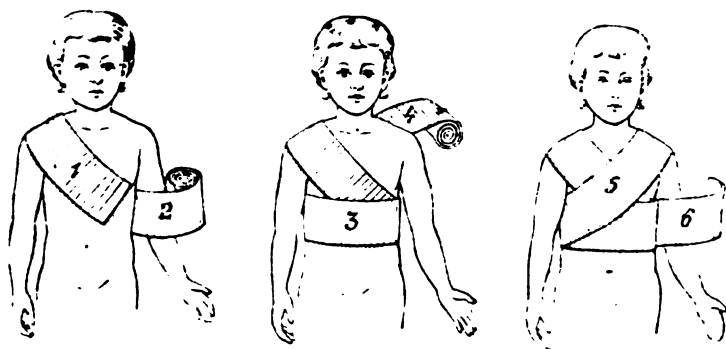


FIGURE 65. WET COMPRESS FOR OLDER CHILD

electric plate, or, where this is not available, by a gas or oil-stove. Inhalations of cresoline or formaline and such drugs are, in the writer's opinion, useless and they will not take the place of the steam.

Moist compresses are among the best and most effective household remedies, provided they are applied in the right way. They consist of a piece of cloth dipped in tepid water and wrung out, a piece of oil-silk, guttapercha-paper or oiled paper, which should be one inch wider than the moist cloth, and finally a flannel bandage or a flannel shirt. For inflammations in the throat and the tonsils the compress should be fastened over the top of the head to act on the parts affected; for inflammations in the throat lower down the compress is fastened around the neck; for the chest, including the windpipe it should be applied as follows for babies: a roller-towel is folded to the width of from four to six inches according to the size of the child, the middle of this is placed under the child's back, so that the compress reaches well up into the armpits, then it is crossed over the breast-bone, folded back over the shoulders and fastened on each side of the spine to the first layer across the back (see Fig. 64). The oil-silk is applied the same way and the whole is kept in place by a flannel shirt; in older children it can also be applied according to the method shown in Figure 65. Compresses over the abdomen should be very carefully applied and fastened because they slip up very easily.

For earache a small hot-water bag or a small bag,

lightly filled with table-salt and then heated in the oven, will often stop the pain until the physician can examine the ear. The hot-water bag is one of the handiest things in the household, but few people know how it should be filled, and when filled improperly it will usually not stay in the right place nor do much good. The right method to fill a hot-water bag is to fill it half full with water at a temperature of about one hundred and twenty-five degrees Fahrenheit and then slowly to lay it on its side until the water is up to the neck of the bag and all the air out of it; in this position the top is then screwed on (see Fig. 66). This is also the method of filling ice-bags. Both the hot-water bag and the ice-bag should not be placed directly upon the skin, but they should always be wrapped in a few layers of flannel. The mother should make it a practice to hold the hot-water bag to her cheek for at least one minute before she applies it to the child to avoid nasty burns. In his teaching of nurses the writer has insisted that the bag should be brought into the sickroom held against the cheek of the nurse. If it is done this way older children will also lose their fear of being burned.

Poultices are applied for the moist heat they give off and not for any medicinal action of the material from which the poultice is prepared. The old-fashioned flax-seed poultice will hold the heat longer and stay moist longer than any other, and when it is carefully wrapped in cheese-cloth or muslin it is cleanly and can be changed readily. Two poultices



FIGURE 66. FILLING HOT WATER BAG

should be on hand so that one can be re-heated while the other is applied. If we intend to draw the blood to the skin with the poultice we can do this best and easiest with a mustard poultice, which is made as follows: one or two tablespoons of dry mustard powder are mixed with four tablespoons of flour; into this a whole egg is broken and stirred thoroughly, then hot water, near but not at the boiling-point, is mixed in until the poultice begins to run and the essential oil of the mustard begins to irritate the eyes, then it is wrapped up in cheese-cloth and applied. To use other material, such as spices or onions, and so on, is superfluous. The new-fangled, ready-made poultices which are sold under various high-sounding names and are nothing else than clay mixed with glycerine and a few drops of some essential oil, do not hold the heat as long as does the good old flax-seed poultice, and when they are applied directly to the skin, as is usually advised, they are difficult to remove, especially when they get into the hair and, moreover, they make it difficult for the physician to examine the child.

Cold is best applied in fresh injuries and in acute conditions; heat, in chronic inflammations.

Ointments are used for two purposes, either to cover the skin or to be rubbed into it. When used to cover the skin, in skin-diseases, or to protect diseased and injured parts, then the ointment should be applied not less than one-sixteenth of an inch in thickness. If prescribed for the action of the

medicinal properties of the drugs contained in the ointment, small quantities should be used at a time and thoroughly rubbed into the skin, so that it can be absorbed.

When the physician has ordered an enema, an injection into the bowel, this is best given with a soft rubber catheter, which is well oiled and with a glass funnel fastened to this, to pour in the warm water (see Fig. 67); if a fountain-syringe is used for this purpose it should be so held that its lower portion is not more than six inches above the child's rectum. If the fountain-syringe should be held too high and the pressure under which the enema is given should be more than twelve inches, then the liquid will cause the internal closing muscles of the rectum to contract, the liquid will stay in this part of the bowel, ballooning it up, and, it will give the patient considerable pain and discomfort, while when it is done with low pressure the liquid will sneak in, so to say, and it will thus reach the upper bowel, where it is intended to go.

For the rapid emptying of the lower bowel the writer advises an enema made as follows: a tablespoonful of each, grated castile soap and castor oil are mixed thoroughly and into this a pint of warm water is slowly stirred; this should not be employed more than once or at most twice.

Wet packs are the best and at the same time the safest means of reducing fever, and they are employed with great benefit in quieting children suffering from nervous excitation. They are also used

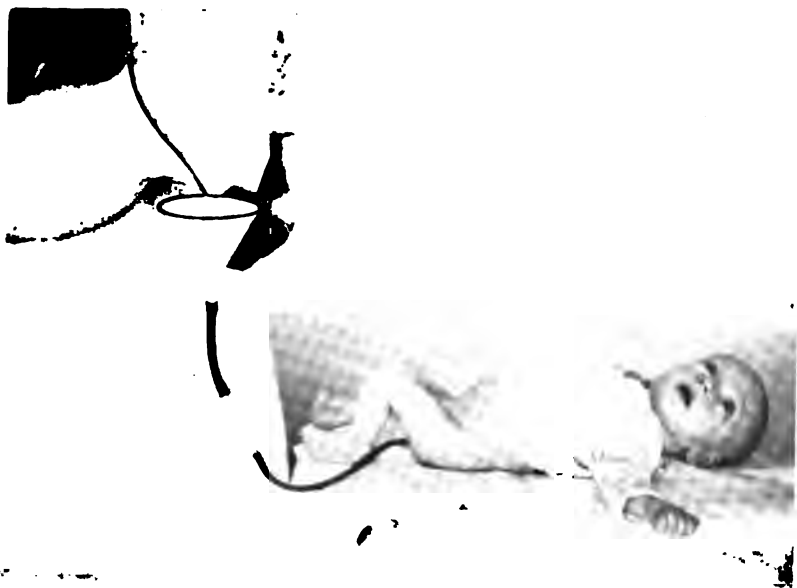


FIGURE 67. ENEMA

to relieve congestions of internal organs, especially of the lungs. A sheet is wrung out of cool or hot water, as the case may be; this is spread over a heavy woollen blanket, then the child is carefully wrapped up in these, so that one end of the sheet goes around the body under the armpits and the other end over the shoulders, then the blanket is tucked around the child (see Fig. 68). Infants may remain in the pack for from ten to thirty minutes, older children up to one hour. Then they are taken out, rubbed until they are quite dry and wrapped in a dry, warm blanket for two or three hours longer.

In relieving congestion of the lungs a mustard pack can not be surpassed in effectiveness. To prepare this a large cup of dry mustard powder is mixed with a quart of warm water to form a thick soup, the smelling of which makes the tears come to the eyes of the one who prepares it; into this a sheet is dipped, in which the child is wrapped in the same manner as in an ordinary wet pack. The child remains in the mustard pack not less than twenty minutes, then it is sponged off quickly with warm water and placed in an ordinary warm pack for two hours. After the mustard pack the skin of the child should be the colour of a boiled lobster. This mustard pack can not be given more than once a day, but even in severe cases of pneumonia one of these packs may be the means of saving a child's life; ordinary wet packs may be administered several times a day. Needless to say that the child has to be watched constantly while in a pack, and, if neces-

sary, a cold cloth should be applied to its head.

The most important point in the application of compresses as well as of packs is that the child should react; that means that the blood should really be drawn into the skin. If the child should not thus react the procedure does no good and should not be repeated. It is quite easy to find out if a compress is having the desired result by slipping a finger under it. When the skin under the compress is hot and moist this shows that it is doing good, if on the other hand it should feel cold and clammy it should be removed at once.

Full baths are given not only for cleansing purposes, but they are also of medicinal value when we add various drugs to the water. The temperature of the bath must be measured with the bath-thermometer and the degree of the temperature must be left to the physician. Cold affusions in the hot bath are of great value in diseases of the respiratory organs. The child is placed in a hot bath for from three to five minutes, then it is lifted up and cold water is poured over its chest and back and shoulders with a tumbler or a small pitcher, then the child is at once taken from the bath and dried thoroughly.

The two kinds of baths most in use are the bran bath and the salt bath. For a bran bath, which is beneficial in many forms of irritation of the skin, a pound of bran is placed into a muslin bag and hot water is allowed to stand over it for some minutes, then the bath is filled to the desired height



FIGURE 68. WET PACK

and temperature and the bag kneaded in it until the water becomes milky. Salt baths are much used in and seem to be of benefit for scrofular children. They are best prepared with sea-salt which may be obtained at the drug stores; of this six ounces are used to each five gallons of water. Other medicinal baths must be prepared strictly according to the directions of the physician.

CHAPTER XVIII

RECIPES OF DISHES FOR CHILDREN

FOR INFANTS

BARLEY WATER. One-half ounce of whole barley (1 level tablespoonful) is washed and then ground in a coffee-mill; it is then cooked in a double boiler with one and one-half pint of fresh water for two hours and allowed to drain through a piece of cheese-cloth; it must then be brought up to one pint by the addition of boiled water. One of the barley flours made from the *whole* grain may be used, and it has to cook then for only twenty minutes.*

Oatmeal Water. One-half ounce of rolled oats (1 highly heaped tablespoonful) is washed and then cooked in a double boiler with one and one-half pint of fresh water for two hours and allowed to drain through a piece of cheese-cloth, it must then be brought up to one pint by the addition of boiled water. One of the oat flours made from the *whole*

* The author has found the barley, oat and soy bean gruel flours and the malt called Cereo, all manufactured by the Cereo Company of Tappan, N. Y., to be the best and cheapest, and his chemical analyses correspond to those of the manufacturers.

grain may be used and it has to cook then for only twenty minutes.*

Barley Gruel. One ounce of barley (2 level tablespoonfuls) is washed and then ground in a coffee-mill; it is then cooked in a double-boiler for two hours with one and one-half pint of fresh water; it is then strained through a piece of cheese-cloth or a hairsieve and brought up to a pint by the addition of boiled water. One of the barley flours made from the *whole* grain may be used, when it has to cook only for twenty minutes; in this case it need not be strained after the child is six months old.*

Oat Gruel. One ounce of rolled oats (2 highly heaped tablespoonfuls) is washed and then cooked in a double-boiler with one and one-half pint of fresh water for two hours; it is then strained through a piece of cheese-cloth or a hairsieve and brought up to a pint by the addition of boiled water. One of the oat flours made of the *whole* grain may be used, when it has to cook only for twenty minutes; in this case it need not be strained after the child is six months old.*

Rice Gruel. Two tablespoonfuls of rice are soaked over night in eight ounces of water, cooked over a slow fire for two hours in the same water and then strained through a hairsieve.

Dextrinised Gruel. The gruel is prepared as de-

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scribed above; it is then allowed to cool down to blood temperature, about one hundred degrees Fahrenheit, then a teaspoonful to a tablespoonful of an active malt-preparation is stirred in. It is much easier to strain after it has been dextrinised, as the process makes even a thick gruel thin and watery.*

Soy Bean Gruel. One-half ounce of soy bean flour is cooked with the gruel in addition to the cereal.*

Skim Milk. A quart of fresh pure milk is allowed to stand on ice for three or four hours. When the cream has all risen this is either taken off with a small dipper or the milk may be syphoned out from underneath the cream with a bent glass tube by suction or by pressure from above.

Bulgarian Buttermilk. As the buttermilk in the market varies considerably in acidity, it is preferable to prepare it at home. One quart of skim milk is boiled so that all the bacteria in it will be killed. It is then allowed to cool down to blood heat, about one hundred degrees Fahrenheit, and a pure culture of lactic acid bacteria, either in tablet or in liquid form, is added, and the milk is allowed to stand at room temperature, at from sixty to seventy degrees Fahrenheit, for twenty-four hours. It will then be ready for use. To make the buttermilk after this it is only necessary to keep an ounce

* The author has found the barley, oat and soy bean gruel flours and the malt called Cereo, all manufactured by the Cereo Company of Tappan, N. Y., to be the best and cheapest, and his chemical analyses correspond to those of the manufacturers.

of it from the day before to be added to the freshly boiled milk.

Buttermilk Soup. The amount of wheat-flour and granulated sugar prescribed by the physician is placed into a saucepan, preferably of aluminum and holding two quarts, and stirred into a batter with one-half pint of cold water. It is then put on the fire and the buttermilk added slowly in small amounts until lumps will no longer form; then the rest of the quart of buttermilk is added and the whole brought to the boiling point under constant stirring. As soon as it begins to boil up it is withdrawn from the fire and this is repeated twice more.

Albumin Milk. One quart of fresh milk is boiled for five minutes and cooled to blood heat, one hundred degrees Fahrenheit, then a teaspoonful of Chymogen (Armour and Co.) or a similar preparation is stirred in and the milk allowed to stand for one hour at this temperature. It is then strained through a clean, freshly boiled cheese-cloth bag and allowed to drip for one and one-half to two hours; the solid curd is then forced through a hairsieve with a potato-masher twice with one pint of buttermilk, and then enough boiled water is added to bring the whole up to one quart, beating it vigorously in a small churn. The amount of sugar to be added to this must be prescribed by the physician. Before giving this albumin milk it must be shaken well and it must be heated very carefully to prevent the formation of large curds which can not pass through

the nipple. No other food, except breast-milk can be given with this milk.

Home-made Malted Milk. A home-made malted milk which has been used very successfully by the writer is made as follows: a pint of fresh milk is heated to blood temperature, one hundred degrees Fahrenheit, and three-quarters of a tube of peptogenic milk powder, or a similar preparation, is stirred into it; it is then allowed to stand at the same temperature for ten minutes. Then it is brought to boiling and one pint of dextrinised gruel is added.

Orange Juice. A sweet ripe orange is cut in two and the juice expressed and strained through a piece of cheese-cloth. If the orange should not be sweet enough a small pinch of bicarbonate of soda, not sugar, will remedy this.

Orange Peel Water. The medicinal action of orange peel water is quite as good as that of orange juice; it is made as follows: the peel of a ripe orange is grated and two tablespoonfuls of this is steeped with four tablespoonfuls of water and strained through a piece of cheese-cloth; to cover the bitter taste one-quarter of a one-grain saccharine tablet is added.

Potato Water. A medium-sized potato is boiled in salt-water. When it is thoroughly cooked the water is drained off and the pot is put on the fire again, to make the potato mealy; then it is peeled and mashed. Two heaped tablespoonfuls of this are stirred into one pint of water.

Grated Apple. A sound, ripe, sweet apple is peeled and then grated on a vegetable grater to a very fine pulp.

Farina Pap. One cup of milk, eight ounces, is put into a sauce-pan, preferably of aluminum, and brought to the boiling point, then two teaspoonfuls of farina are stirred in slowly and this is allowed to boil under constant stirring until thick.

Zwieback Pap. Three or four zwieback are rolled with a rolling pin into fine crumbs and then boiled with one cup, eight ounces, of milk, until thick. Instead of the zwieback three slices of dry toast may be used.

Dry Toast. Stale wheat bread is cut into slices one-quarter inch thick, put in a bread-pan and roasted in the oven with a slow fire until the bread is a golden brown.

Arrow-Root Pap. One cup of fresh milk, one-half pint, is put into a sauce-pan and one teaspoonful of arrow-root is stirred into this, then it is boiled under continuous stirring until thick.

Vegetable Soup. Two ounces of carrots (one medium-sized carrot), two ounces of potatoes (one small potato), one ounce of turnips (one-half of a small turnip), one ounce (one handful) of spinach or lettuce leaves, one ounce (one heaped tablespoonful) of dried beans, split peas, lentils or of pearl barley, one-half teaspoonful of salt and one quart of fresh water are put into a stew-pan; this is well covered and allowed to simmer for four hours on the back of the stove or in a fireless cooker, then it is strained

through a hairsieve and brought up to one quart with boiled water. Before feeding it is thickened by crumbling up some dry toast into it.

FOR YOUNG CHILDREN

Spinach or Lettuce. Eight ounces, one peck of young fresh spinach or two small heads of lettuce are washed three times in fresh cold water and boiled for about five minutes with a pinch of salt. As soon as the leaves are thoroughly cooked they are minced very finely; then the minced leaves are strained twice through a hairsieve and heated up quickly with one-half teaspoonful of fresh butter.

Mashed Potatoes. Eight ounces of peeled potatoes (one large potato), are boiled with one teaspoonful of salt and sufficient water until they are cooked through. This will take not less than one-half hour, then the water is drained off and the potatoes are dried in the oven for a few minutes; they are now strained through a hairsieve, one-half teaspoonful of fresh butter and four ounces of milk stirred in and the whole cooked on a slow fire.

Mashed Carrots. Six ounces (one or two bundles) of fresh young carrots are washed in cold water and scraped clean; they are then cut into disks and cooked with one-half pint of fresh water and one-half teaspoonful of salt for three-quarters of an hour. They are now drained; the drained-off water is boiled down considerably and the carrots strained with this through a hairsieve, then one-half tea-

spoonful of fresh butter and one-quarter teaspoonful of granulated sugar is stirred in and the whole boiled on a slow fire.

Mashed Chestnuts. One-half pound of ripe Spanish chestnuts are peeled and then boiled up quickly in water to remove the inner peel. One-half pint of fresh milk is brought to a boil and the chestnuts cooked in this for one hour; they are then strained through a hairsieve and cooked on a slow fire with one-half teaspoonful of salt and one-half teaspoonful of butter.

Mashed Peas. One pound of green peas are shelled, placed in a pot with four ounces of water, one-half teaspoonful of salt and one-half teaspoonful of granulated sugar, cooked for one-half hour over a slow fire, strained through a hairsieve and cooked quickly over a slow fire with one-half teaspoonful of fresh butter. Instead of the green peas eight ounces (one-half cupful) of dried peas, beans or lentils are soaked over night and cooked in the same manner.

Milk Rice. Two ounces (two heaped tablespoonfuls) of washed rice are boiled for one hour in three-quarters of a pint of milk with one tablespoonful of sugar and one-half teaspoonful of salt.

Prune Pulp. One pound of dried prunes are put in a pot and covered with fresh cold water, they are then brought to the boiling point; the water is then drained off and replaced with fresh water. This is done three times in all. Then one-half pint of fresh water is added and they are boiled over a slow fire

for one hour, replacing the water as it boils off. Then they are strained through a hairsieve.

Stewed Bananas. Two bananas are peeled and stewed whole for five minutes in one ounce of browned butter, turning them over a few times. They are then placed into a covered casserole with three ounces of milk and stewed for fifteen minutes over a slow fire.

Mashed Bananas. Two bananas are peeled and sliced and boiled for ten minutes in one-half pint of milk; then they are cooked up quickly with one-quarter teaspoonful of salt and one teaspoonful of granulated sugar and strained through a hairsieve.

Apple Sauce. One-half pound of apples (two small apples) are washed and sliced and they are then stewed for fifteen minutes with three ounces of cold water and two teaspoonfuls of granulated sugar and strained through a hairsieve.

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